SECTION III.
MOUNT SPOKANE STATE PARK
PROPOSED SKI AREA EXPANSION
DRAFT ENVIRONMENTAL IMPACT STATEMENT

FACT SHEET

Proposal/Title:	Mount Spokane State Park: Proposed Ski Area Expansion Draft Environmental Impact Statement
Description of Proposal:	A proposal to the Commission by Mount Spokane Ski and Snowboard Park to develop alpine ski facilities into a 279-acre expansion area within and adjacent to the PASEA by constructing one new chairlift and seven associated ski trails (project action).
Description of Alternatives:	Three alternatives are analyzed in detail for the project action: a No Action Alternative, the Proposed Action and a Mitigated Proposed Action.
Location:	Mount Spokane State Park is located approximately 22 miles northeast of the City of Spokane in Spokane County. Access to the park is almost exclusively by State Highway SR 206. The highway at the park entrance is Mount Spokane State Park Drive.
Tentative Date of Implementation:	Spring/Summer 2015
Name and Address of Lead Agency and Contact:	Washington State Parks and Recreation Commission 1111 Israel Road Southwest; PO Box 42650 Olympia, WA 98054-2650
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Required Approvals:	See Table EIS 2-5 of this document
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Location of Copies of Draft EIS for Purchase and Cost of Copy to Public:	Washington State Parks and Recreation Commission 1111 Israel Road Southwest Olympia, WA 98504-2650 360.902.8638

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1. BACKGROUND, PURPOSE AND NEED

1.1 INTRODUCTION

Mount Spokane Ski and Snowboard Park is located within Mount Spokane State Park, approximately 22 miles northeast of Spokane in Spokane County, Washington (see Figure EIS-1). With approximately 14,000 acres, the park provides a wide range of year-round recreation opportunities to a large and diverse community of supporters and user groups. Since 1997 Mount Spokane Ski and Snowboard Park has been managed and operated by a community-based non-profit organization known as Mount Spokane 2000 (MS 2000) under the terms of a long-term concession agreement with the Commission. Currently, Mount Spokane Ski and Snowboard Park maintains 32 ski runs, 5 chairlifts, 2 lodges (including restaurant, lounge, ski school, equipment rentals), a ski patrol building, and various administrative support structures on 1,425 acres (see Figure EIS-2).

Alpine skiing on Mount Spokane began in the early 1930s when several ski clubs from the Spokane area began acquiring land and building ski area improvements at various sites around the summit of the mountain. In the mid-1950s Washington State Parks (State Parks) awarded a concession agreement to a private operator, the Mount Spokane Skiing Corporation (MSSC). With the growing popularity of the sport throughout the baby-boom years, skier visitation at Mount Spokane continued to increase well into the 1980s. MSSC continued to operate the concession under various owners until the concession agreement between MSSC and State Parks expired on June 9, 1995. The current Concessionaire, Mount Spokane 2000 (MS 2000) has operated the ski area since October, 1997.

1.2 BACKGROUND

Development of the northwest facing slopes of Mount Spokane has been discussed for many years beginning in the 1930s. For example, the Potential Alpine Ski Expansion Area (PASEA, further discussed below) is located within the existing ski area concession boundary, and much of it included the original site of the first lift facilities, lodges, and improved trails to be constructed on the mountain, as developed by various Spokane-area ski clubs, including the Selkirk Ski Club, the Spokane Ski Club and the Spokane Mountaineers. Prior to a 1952 fire, which destroyed a newly constructed lodge, the PASEA included overnight and day use lodge facilities, a parking area, three rope tows and several ski trails (SE Group 2007).

More recently, proposed development of the northwest face or “backside” of the mountain was identified as a PASEA in the 1992 study “Mount Spokane State Park Alpine Ski Area Study,” commissioned by State Parks to analyze the existing ski area operation and provide recommendations and guidelines for the future. The PASEA is also noted as a potential expansion area in the 1997 Concession Agreement between MS 2000 and State Parks. As part of its October 1999 classification action for Mount Spokane State Park, the Commission left the PASEA as an unclassified area within the 14,000-acre Park in order to further study what the eventual classification should be, particularly within the context of a potential

expansion of Mount Spokane Ski and Snowboard Park. In 2010, MS 2000 approached the Commission with a conceptual proposal to expand skiing into approximately 279 acres of the 800-acre PASEA (see Section I, Chapter 2 – Background).[6] For purposes of this analysis the 279 acres are hereafter referred to as the expansion area or Study Area.[7]

Over the past decade, MS 2000 has contracted a number of studies related to the capacity of existing facilities, infrastructure (e.g., power, water, sewer), a financial analysis of a range of development alternatives, a Regional Recreational Demand Study, an Assessment on the Effects of PASEA Development on Existing Recreation, and field inventories of wetlands, streams, and wildlife habitat in support of the proposed ski expansion into the PASEA. These studies included, but are not limited to:

- Mt. Spokane Ski & Snowboard Park – Potential Expansion Area Concept, 2006,
- Market and Economics Analysis for the Mount Spokane Ski and Snowboard Park Master Facilities Plan, 2007,
- Mount Spokane Ski and Snowboard Park – Base Area Lodge Preliminary Design Study, 2008,
- Biological Surveys Conducted in the SEIS Analysis Area at Mt. Spokane State Park During 2010,
- Wetland Categorization/Buffer Establishment Stream Typing/Buffer Establishment PASEA, 2011
- Wetland Delineation Report Mount Spokane Ski and Snowboard Park Proposed Expansion Area, 2014, and
- Draft Habitat Management Plan Mount Spokane Ski and Snowboard Park Proposed Expansion Area, 2014.

These studies have been utilized by MS 2000 and State Parks to develop a number of working concepts related to the expansion of ski area infrastructure into the PASEA. These concepts have been further refined by the project team through many years of planning and public outreach resulting in the current proposal by MS 2000, which is intended to minimize the potential physical impacts of a ski area expansion within the PASEA.

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[6] Due to the evolution of mapping technologies from 1999 to present, the PASEA's GIS boundary includes approximately 20 acres to the south of the PASEA that was previously classified by the Commission as Resource Recreation. Without this adjustment to existing land classification boundaries, Alternative 4 would potentially site recreational facilities in a Resource Recreation classification. In addition, Alternative 4 would potentially site recreational facilities within less than 1 acre of the existing Heritage land classification adjacent to the Vista House. This action seeks to address this issue and adjust the boundaries of previously classified lands to be more consistent with the potential placement of developed recreation facilities.

[7] For purposes of the project description or description of alternatives, the 279 acres is referred to as the expansion area. However, because the Study Area may vary by resource in Chapter 3, a separate description of "Study Area" is frequently used.
While the PASEA boundary and acreage has changed (see footnote 6), the 279-acre expansion area/study area has not changed.

State Parks is the SEPA lead agency. As discussed above, this SEPA DEIS builds upon the previous Final SEIS and specifically addresses the proposed expansion of lift-served downhill skiing and snowboarding into the 279-acre expansion area.

1.3 PURPOSE AND NEED

This Draft EIS has been prepared in accordance with the Washington State Environmental Policy Act (SEPA, RCW43.21C). This Draft EIS is not a decision document; its primary purpose is to disclose the potential environmental consequences of implementing any of the alternatives under consideration. As detailed later, a variety of federal, state and local government permits may also be required.

The underlying Purpose and Need for the proposed development of ski area improvements within the PASEA are:

1. Increasing the available inventory of round trip, consistent gradient, intermediate level trails within the concession area, which will allow for better circulation and more even distribution of low-intermediate and intermediate level skiers throughout the ski area;
2. Increasing the amount of terrain that has better long term snow accumulation, retention capability and snow quality available within the ski area, which provides a better assurance of continued operations during periods of low snowfall and gives the resort the ability to favorably compete in the market as well as to address the potential effects of climate change; and
3. Improving search and rescue operations within the PASEA.

Purpose #1:

Increasing the available round trip, consistent gradient, intermediate level trails within the concession area, which will allow for better circulation and more even distribution of low-intermediate and intermediate level skiers throughout the ski area.

The PASEA expansion represents an opportunity to add a significant quantity of intermediate level terrain to Mount Spokane. This terrain would significantly change the experience of skiing at Mount Spokane, as it would add several new trails of a type of terrain that is currently a deficiency at the ski area (i.e., top-to-bottom, consistent gradient, intermediate level trails). The terrain in the expansion area presents the potential to create low to advanced intermediate level trails that have consistent grade and are consistently in the fall-line. Low intermediate and intermediate level skiers are the largest segment of the market, so this terrain will appeal to the greatest percentage of skiers. Increasing the quantity and quality of intermediate level ski runs at Mount Spokane will also create a more even distribution of skiers at Mount Spokane. Since low intermediate and intermediate level terrain is currently restricted primarily to Chair 3 at Mount Spokane, the addition of the terrain within the expansion area would reduce the high demand that the terrain off of Chair 3 currently witnesses—particularly in the merge zones found in the lower portion of the Chair 3 terrain, where densities are currently quite high. As a result, allowing for better

circulation and more even distribution of low intermediate and intermediate level skiers would improve the ski experience throughout Mount Spokane.

Purpose #2:

Increasing the amount of terrain that has better long term snow accumulation, retention capability and snow quality available within the ski area, which provides a better assurance of continued operations during periods of low snowfall and gives the resort the ability to favorably compete in the market, as well as to address the potential effects of climate change.

Mount Spokane has historically benefited from consistently cold winter temperatures and an average annual snowfall accumulation of about 150 inches. The existing lift and trail network is primarily situated on the southeastern exposure between a base elevation of approximately 4,300 feet and the summit of the mountain at approximately 5,900 feet elevation. As annual snow deposition has varied significantly over the last ten years, the 4,100-foot level has emerged as the critical snowline. As a result, the location of the ski resort on the southeast aspects of Mount Spokane has restricted the operation of Mount Spokane Ski and Snowboard Park, especially early in the season, due to the lack of snow in the lower terminal and base areas. Predicted climate change could exacerbate this effect due to the relative lack of northerly-facing terrain. Accordingly, there is a need for additional northwest-facing terrain to provide better snow retention, increased operating days, and to address potential climate change. As a general rule, the higher elevation, the more northerly facing, and the more wind protected areas will have consistently better snow retention and quality. As a result of all of these factors, the snow quality in the PASEA area is generally some of the best found at Mount Spokane. The elevations are generally higher, the slopes are generally more northerly facing, and the area is generally more protected from wind than other portions of the ski area. As a result, there is generally more snow and higher quality snow in the PASEA area.

Purpose #3:

Improving search and rescue operations within the PASEA.

The PASEA has been managed by State Parks as a Natural Forest Area, even though it is located within MS 2000's concession area boundary and is listed as Unclassified. As such, MS 2000 has not been permitted to patrol, maintain or operate the PASEA in a manner consistent with the rest of its ski area operations. Because the PASEA is easily accessed from the summit and is known for its higher snow quality and excellent tree and glade skiing, it has become a popular destination for skiers seeking a lift-served "backcountry" experience. Accordingly, MS 2000 has provided emergency response to lost and injured skiers within the PASEA on almost a weekly basis, which taxes the resources of its all-volunteer ski patrol. A formalized trail system and chairlift in the PASEA would lead to a significant decrease in backcountry injuries and lost skiers by providing safer, groomable trails with more effective ski patrol operations.

1.4 SCOPING AND PUBLIC PARTICIPATION

Scoping is an integral part of the environmental analysis. Scoping includes refining the Proposed Action, identifying the preliminary issues and inviting the participation of interested and affected persons. The results of scoping are used to 1) refine the issues; and 2) explore alternatives to the Proposed Action and their potential effects.

This Draft EIS has been developed with extensive public participation. The project and non-project actions were originally presented to the public in 2011 prior to the May 19, 2011 Commission Action to classify lands within the PASEA (non-project action) and in 2012 with the *Mount Spokane Ski and Snowboard Park Final Supplemental Environmental Impact Statement* (project action). The Draft SEIS alone received a total of 157 individual comment letters, 8 responses from state agencies and non-profit entities, and 153 pre-formatted comment cards in 2012 and the non-project action was the subject of several public meetings held in the Spokane area.

On November 12, 2013 Parks issued a Determination of Significance and Scoping Notice, which described the non-project action to classify lands within the greater 800-acre PASEA and the project action to expand ski facilities into the 279-acre expansion area. In response, Parks received 600 public comments on the Scoping Notice from other government agencies, tribes, non-profit groups and the general public.

As such, identification of probable adverse environmental impacts has occurred through review of comments received during the SEPA review process for the Commission's May 19, 2011 PASEA Land Classification decision, comments received during the preparation of the Draft and Final SEIS, and the environmental record that has been assembled over the life of this project.

Pursuant to WAC 197-11-402(1), EIS's need analyze only the reasonable alternatives and probable adverse environmental impacts that are significant. State Parks staff has identified the following elements of the environment that may be significantly impacted by the proposed ski area expansion:

- Wildlife habitat supporting populations and occurrences of resident wildlife species within the PASEA and transiting through it;
- Wildlife habitat connectivity to intra-park and regional wildlife corridors;
- Natural forest and native plant associations and communities;
- Soils and slope stability;
- Water quality;
- Introduction of non-native plant species; and
- Scenic resources including viewsheds.

2. ALTERNATIVES INCLUDING THE PROPOSED ACTION

This chapter identifies and compares a reasonable range of alternatives related to the proposed expansion of a chairlift and trails into the 279-acre expansion area. A "No Action Alternative" and two "action alternatives," which include the proponent's Proposed Action, are included within this range of alternatives.

Chapter 2 also identifies and discloses the process used to develop alternatives, alternatives considered but eliminated, alternatives considered in detail, mitigation, comparison of alternatives and monitoring requirements.

2.1 PROCESS USED TO DEVELOP ALTERNATIVES

A multi-step process was used to develop the range of alternatives considered in detail in this SEPA Draft EIS. This range is intended to:

- Provide clear choices for State Parks;
- Fulfill the Purpose and Need for the Proposed Action;
- Address specific areas of public concern developed during the scoping process; and
- Remain consistent with other applicable federal, state, and local laws, regulations, policies, and plans.

2.1.1 Alternatives Considered but Eliminated to Avoid and/or Minimize Impacts

The following section discusses the reasons for additional alternatives that were explored, but not developed in detail. A detailed discussion of these alternatives, and alternative components that were considered during the development of the Proposed Action but eliminated from further analysis, is presented below. Where feasible, potential effects of the construction of specific elements or groups of elements within the Proposed Action were reduced or eliminated by making revisions to the expansion proposal. Finally, the project team considered whether the resulting project component or alternative would actually meet the Purpose and Need for the Proposed Action.

2.1.1.1 PASEA Two Chairlift Concept

This project component was developed in early 2006 as a concept intended to analyze the effect of maximizing ski trail development within the PASEA. Within the local market, Mt. Spokane competes with 49º North, Silver Mountain, and Schweitzer. Each of these areas has unique differentiators that attract a particular segment of the skier market. At the time the concept was developed, all of the areas in Mount Spokane's market had witnessed increases in visitation as a result of population and economic growth in the region as well as increased demand. Additionally, Lookout Pass had recently received approval for additional lift and ski trail development within the "Northstar" pod.

Development of the two-lift concept, with approximately 15 additional ski trails would have provided lift served access to the majority of the terrain above Chair 4 Road. As such, the concept would have the greatest potential to address the public need for new facilities and respond to the need for additional improvements at Mount Spokane in order to maintain competitiveness within their market.

Rationale for Elimination

It was determined during the preliminary environmental analysis that the beneficial aspects of this alternative could be addressed in a lower impact manner, as shown in Alternatives 2 and 3. Additionally, the terrain accessed by the second lift, located immediately southwest of the existing Chair 4, would have eliminated the "side-country" ski experience at Mount Spokane. As such, elimination of a second chairlift from consideration resulted in a reduced impact to backcountry users.

2.1.1.2 Connector Trail between Chair 6 and Chair 4

This project component was developed in order to provide more efficient circulation between proposed Chair 6 and existing Chair 4. This revision to the Project Proposal would have included the development of a connector trail between the bottom of the proposed Trail 7 in the Chair 6 pod and bottom of the existing Skid Road trail to allow skiers in the PASEA to access ski trails in the Chair 4 pod from ski trails served by Chair 6. Additionally, the connector trail would have functioned as a catch trail to funnel skiers accessing terrain between the two pods to the bottom of Chair 4.

Rationale for Elimination

During the surveys performed by Pacific Biodiversity Institute (PBI) in 2010 (see Appendix B) it was concluded that 14 (totaling approximately 83.44 acres) of the 92 stands in the approximately 490-acre Biological Survey Area (BSA), located entirely within the greater 800-acre PASEA, contained potential old growth forest or forests approaching old growth conditions. As such, elimination of the crossover trail specifically avoided seven of these stands (totaling 32.18 acres) altogether. Additionally, it was determined that construction of the connector trail would result in approximately 6 acres of grading to formalize the connector trail. As mentioned above, the trail alignment contains the highest density of large diameter trees within the PASEA analysis area, as well as numerous streams and wetlands.

Based on discussions with MS 2000, the ski patrol could rope and sign the boundary to provide a similar informal catch trail function between the pods without grading the trail, as originally designed. Therefore, MS 2000 altered their Project Proposal to reflect the elimination of the formalized connector trail in order to protect wildlife habitat within the trail alignment.

2.1.1.3 2007 Trail Alignment

This alternative trail alignment was developed during the 2007 planning process. At that time, the confluence of Trails 3 and 6 was proposed further to the west in order to provide a smoother skiing transition and access to the bottom terminal of the proposed Chair 6 lift. This alternative would have resulted in an increased recreational experience for Mount Spokane guests round-trip skiing in the proposed Chair 6 pod.

Rationale for Elimination

During the early planning process, the confluence of streams and the concave landform in this area was identified as a "high" hazard area for mass wasting. Consequently, the trails were re-designed to avoid removal of trees in this area. After more detailed analysis no mass wasting hazard greater than "moderate" exists in the 279-acre Study Area (see Appendix A). However, the design amendment remains unchanged and the concave landform remains protected.

2.1.1.4 Infill Option

This alternative to the PASEA expansion was developed based on public comments received during scoping for the 2011 Draft SEIS to analyze whether additional trail development within the existing Chair 4 pod would meet existing market demand. This alternative would have included an increase in available terrain within the existing Chair 4 pod to meet the expressed "Purpose and Need" for the PASEA proposal, thereby eliminating the need to develop the seven new ski trails and chairlift as proposed.

Rationale for Elimination

The terrain distribution for the Chair 4 in-fill plan would result in a notable increase in expert terrain. Mount Spokane currently has a large quantity of good, consistent gradient, fall-line, advanced and expert level terrain, available off the existing Chairs 1, 2, and 4. As a result, the resort has no particular need for additional advanced or expert level terrain. Advanced and expert skiers make up a small percentage of the overall skier market. Currently, Mount Spokane has a need for consistent gradient and consistent fall-line low intermediate and intermediate level ski terrain. This is the largest section of the market, so it will appeal to the greatest percentage of skiers. This is the type of terrain that is available in the proposed PASEA expansion. Additionally, the snow quality and retention in the PASEA area is generally better than in other portions of the ski area. As a result of all these factors, the PASEA area presents the best opportunity to create terrain that will significantly improve the ski experience at Mount Spokane and meet the needs of the greatest segment of the market. Therefore, for purposes of this analysis, the Infill option was eliminated from further consideration.

2.2 ALTERNATIVES CONSIDERED IN DETAIL

Two action alternatives and a No Action Alternative (Alternative 1) are analyzed in detail in this Draft EIS, including the MS 2000 Proposal (Alternative 2). Table EIS 2-1 summarizes the range of alternatives considered in detail in this Draft EIS.

2.2.1 Alternative 1 – No Action

The No Action Alternative provides a baseline for comparing the effects of the action alternatives. The No Action Alternative essentially reflects a continuation of existing management practices without changes, additions, or upgrades. No new facilities or recreational opportunities would be approved in the PASEA under the No Action Alternative (see Figure EIS-2).

2.2.2 Alternative 2 – Proposed Action (Enhanced Recreation Alternative)

The Proposed Action would allow the construction of a new chairlift (Chair 6) within the 279-acre expansion area, together with seven new ski trails (totaling approximately 85.4 acres) and accompanying infrastructure to support these proposed improvements. Under Alternative 2, 85.4 acres of formal ski trails would be constructed within the expansion area. Approximately, 24 chairlift towers would be installed under Alternative 2. Each tower footing would require approximately 100 square feet of ground disturbance. The lower loading terminal of the proposed chairlift would be located at approximately 4,420 feet in elevation and would require approximately 0.75 acre of excavation and grading (see Figure EIS-3). The new top terminal near the summit of Mount Spokane would be located approximately 250 feet in distance from the top terminal of Chair 1 at an elevation of approximately 5,850 feet, and would require approximately 0.5 acre of excavation and grading.

Development of the new chairlift and seven new trails under Alternative 2 would require approximately 43.5 acres of tree removal and 32.6 acres of grading. Much of this clearing would occur in areas of the expansion area that are better described as small clusters of tree islands or open stands of blown-down or dead-standing trees.

The Proposed Action would increase the acreage of lift-served ski terrain by approximately 279 acres and include the development of approximately 85 acres of formal ski trails. The proposed trail network is designed to address existing deficiencies in the amount of continuous fall line low intermediate and intermediate terrain available within the ski area boundary. Where practical, the new trails are located to avoid potential impacts to vegetation, by utilizing existing meadows, trails and openings in the forest canopy. The remaining 521 acres within the 800-acre PASEA would not be managed as lift-served terrain, but would continue to be accessible (as in the existing condition) by winter recreators (e.g., snowshoers, backcountry skiers) via existing ski area facilities.

2.2.3 Alternative 3 – Mitigated Proposed Action

Alternative 3 is a revised version of Alternative 3 presented in the *Mount Spokane Ski and Snowboard Park Final SEIS* released in October, 2012 (the Selected Alternative). Following the selection of this alternative, project-level environmental surveys were performed in order to further inform the design process and support the development of Spokane County permit documentation (see Appendix D and Appendix E). Subsequent adjustments were made to the ski trail alignment which allowed for a reduction in the overall impacts to stream buffers within the expansion area while still meeting the Purpose and Need for the expansion. Specifically, using the project-level wetland and stream delineations completed during the summer of 2013, field modifications were made to sections of Trails 1, 2, 3, and 4 in order to adjust portions of the trails outside of the defined wetland and stream buffers (as defined by the Spokane County Critical Areas Ordinance). The recreational benefit of the ski trails was not compromised, as the trail modifications did not decrease the skiability of any of the trails.

Similar to Alternative 2, Alternative 3 would increase lift-served ski terrain by approximately 279 acres to allow for the construction of a new chairlift and seven associated ski trails within the expansion area (see Figure EIS-4). Alternative 3 represents a reduced version of the Proposed Action, and was developed to address concerns associated with:

- Water and Watershed Resources
- Soils

Alternative 3 would be the same as described for Alternative 2, except Alternative 3 modifies the Proposed Action by reducing or eliminating altogether the amount of clearing and grading in wetland and stream buffers necessary to construct new ski trails within the expansion area (see section 3.2 – Watershed Resources). Specifically, Alternative 3:

- Realigns Trail 1 to eliminate clearing within a wetland and reduce buffer impacts
- Adjusts the alignment of Trail 3, eliminating the need to remove vegetation in a stream buffer by intersecting the proposed ski trail further uphill
- Modifies the alignment of Trail 6 to eliminate the need to remove vegetation in a stream buffer

Alternative 3 would require 59.3 acres of clearing and 15.2 acres of grading. When compared to Alternative 2, Alternative 3 would result in 15.8 acres of additional tree removal and 17.4 acres less grading. The new trail alignments would reduce the potential impacts of the project to water and soil resources in the expansion area while continuing to meet the Purpose and Need for expansion of alpine ski facilities at Mount Spokane. The acreage of formal ski trails within the expansion area would be approximately 80.1 acres under Alternative 3, or 5.3 acres less than Alternative 2 (see Table EIS 2-1).

2.2.4 Comparison of Alternatives

The differences proposed in Alternatives 1 through 3 are summarized and compared in Table EIS 2-1. For a detailed discussion of potential effects resulting from implementation of the alternatives, see Chapter 3.

Table EIS 2-1:
Comparison of Alternatives

Project Component	Alternative 1	Alternative 2	Alternative 3
Acreage of Developed Alpine Skiing (acres)	1,425	1,709	1,709
Total Number of Trails	32	39	39
Total Number of Chairlifts	5	6	6
Additional Formal Ski Terrain (acres)	-	85.4	80.1

2.2.5 Assumptions and Actions Common to All Action Alternatives

2.2.5.1 Skier Ability

As used in this EIS, skier ability levels are defined based on the slope gradient, as shown in Table EIS 2-2.

Table EIS 2-2:
Slope Gradient by Ability Level

Skier Ability Level[ab]	Acceptable Slope Gradient (percent slope)
Beginner	8 to 12%
Novice	12 to 25%
Low Intermediate	25 to 35%
Intermediate	35 to 45%
Advanced Intermediate	45 to 55%
Expert	55 to 70%

Source: SE Group
[a] The ability level designation of any given ski trail also includes consideration of the access to, or egress from the trail.
[b] The ability level designation is determined by calculating the maximum sustained grade over a 150-foot linear distance.

2.2.5.2 Construction

The majority of direct effects to resources would be related to treatments (clearing) for the development of the lift and associated ski trails. Estimates on the amount of clearing that would occur for specific activities proposed in the action alternatives are shown in Table EIS 2-3 (for analysis purposes, clearing widths should be considered "worst-case"; actual clearing would not exceed the stated limit and may be less). No permanent road construction would be required.

Table EIS 2-3:
Mount Spokane EIS Clearing and Other Assumptions

Ski Area Component	Clearing Requirement[a]
SKI LIFT	
Alignment Clearing	60-foot corridor
Upper Terminal Ground Disturbance	0.50 acre
Lower Terminal Ground Disturbance	0.75 acre
Tower Ground Disturbance (each)	100 square feet
UTILITY LINES	
Power	15-foot corridor
Communications	15-foot corridor
SKI TRAIL	**Average Width (feet)[b]**
Proposed Trail 1	122
Proposed Trail 2	158
Proposed Trail 3	169

Table EIS 2-3:
Mount Spokane EIS Clearing and Other Assumptions

Ski Area Component	Clearing Requirement[a]
Proposed Trail 4	191
Proposed Trail 5	60
Proposed Trail 6	104
Proposed Trail 7	170

[a] "Worst case" estimate of clearing, grading, machinery operation, storage of spoils, etc.
[b] Trail widths are determined primarily by slope gradients, but also by other factors (e.g., planned usage, ability level goals). Formalization of each trail would not require the complete clearing and/or grading of the entire run length due to existing conditions (e.g., unvegetated, blowdown, meadow).

A small crane or boom truck would be necessary for terminal construction. Depending on the season the work is being performed, equipment would access the site either over snow when possible or, when the area is snow free equipment would utilize a single, temporary access point. Where work over the snow is possible, it would be limited to tree removal. Typically, lift towers and chairlift terminals are not constructed over the snow. The equipment would remain onsite until construction was completed and would leave the site using the temporary access point. Lift terminals would be excavated by machine. Once construction is completed any disturbed areas created by equipment accessing the site would be reseeded and the temporary travel way vacated. Grading for lift terminals and towers would be limited by construction envelopes listed in Table EIS 2-3.

A detailed breakdown of the location and extent of each treatment technique is provided in the description of alternatives and in Table EIS 2-1 (see sections 2.2.1 through 2.2.3) Treatment techniques include:

Full Clearing: To the extent practical after felling downed logs would be retained on site. Trees presenting a safety concern if left in formal ski trails would be removed and stored in an existing off site disturbed area. Trees would be cut flush to the ground and stumps would not be removed. The surface would not be graded and the natural ground cover would be maintained. Tree removal would be accomplished by hand, or with processors such as feller bunchers.

Full Clearing with Grading: All trees would be removed within the construction limits, stumps would be removed, and the surface would be graded and re-vegetated, where appropriate. Grading would occur at all locations where structures are proposed (e.g., lift towers, terminal locations) and along key trails where a smooth surface is necessary. Grading may include the use of heavy equipment (e.g., excavators, bulldozers, etc.) for earthmoving. The removal of trees would be accomplished by hand, or with processors such as feller bunchers. After felling, all trees would be removed and stored in an existing disturbed area.

Tree Island Retention: Tree islands resulting from implementation of the action alternatives would be retained between the ski trails/lift corridor. A limited number of informal skiing routes would be

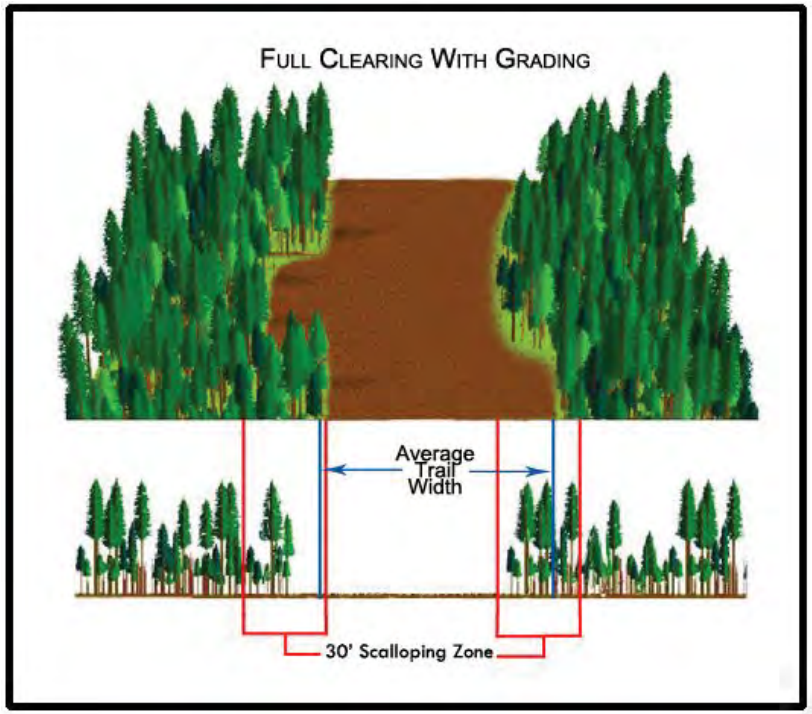
permitted through the treed islands. Limited hand clearing of trees, snags, understory vegetation, and downed woody debris would be allowed to the extent necessary to provide a travel route through the tree islands. No grading would occur.

In addition to the clearing prescription outlined above, ski trail clearing would include edge treatments that are intended to reduce the visual and biological effects of trail clearing and to enhance the skiing opportunities along the trail edge (see Illustrations EIS 2-1 and EIS 2-2). These prescriptions include:

Forest Edge Scalloping: Flagging a separate limit of clearing boundary outside of the trail edge so the boundary is non-linear, in order to reduce visual impacts associated with straight trail edges. The limit of clearing would meander, or undulate, outside of, but adjacent to, the flagged trail edge, giving a more natural, irregular scalloped edge to the tree line. The limit of clearing would not exceed a maximum distance of 30 feet from the original flagged trail edge.

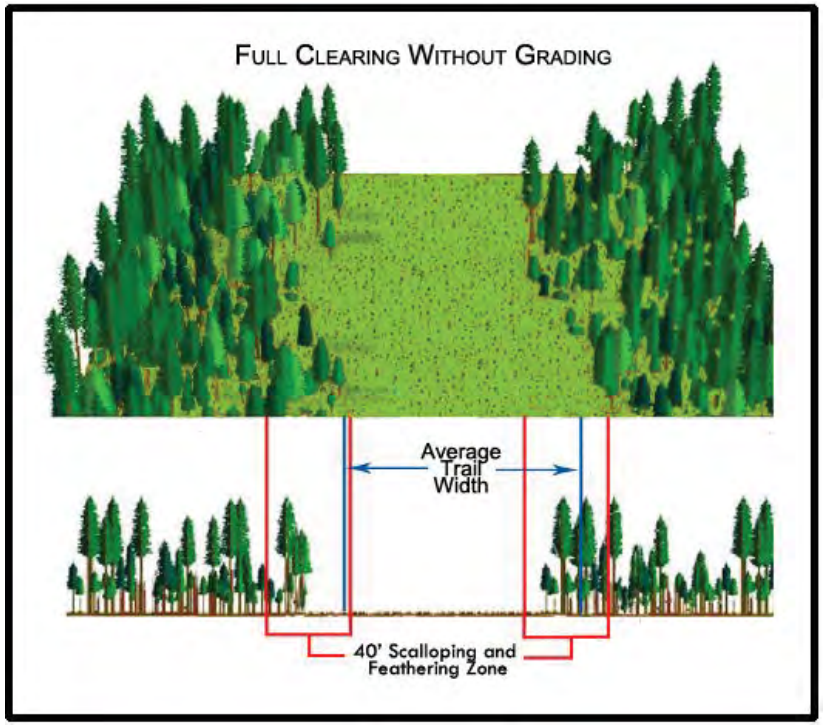
Forest Edge Feathering: Selectively removing trees along the limit of clearing, where appropriate, so that a hard line in the new trail-to-forest transition is not evident. The area to be thinned for forest edge feathering would be approximately 10 feet wide. Large trees (i.e., greater than 8 inches dbh) would be selectively removed starting at the limit of clearing, so that the tree density would get progressively lower toward the interior of the trail and within the 10-foot feathering area.

Illustration EIS 2-1:
Typical Full Clearing Treatment
Scalloping with Grading



Note: Not to scale (*for illustrative purposes only*)

Illustration EIS 2-2:
Typical Full Clearing Treatment
With Feathering and No Grading



Note: Not to scale (*for illustrative purposes only*)

Ongoing vegetation management to maintain openings would occur over the life of the Concession Agreement.

As described above, standard construction techniques would be used for erecting lift terminal structures. Access to terminal locations would occur over snow when possible and impacts would be minimized by making one entry and exit, where practical. Historically, snow remains in the expansion area throughout most of June. Terminals would be constructed onsite and the footings would be excavated by machine. Equipment access to the terminal and tower locations would not require construction or reconstruction of a road, although the use of a temporary travelway would be necessary to access building sites. Lift tower footings would be excavated by hand or by small, low impact excavators. Concrete for footings and lift towers would be pumped from a concrete truck. As described above, the temporary travelway would be vacated and reseeded following completion of construction activities.

2.2.5.3 Ongoing Impacts Associated with the Expanded Ski Area

Implementation of either of the action alternatives would result in operational and maintenance practices similar to historic ski area operations on the front side of Mount Spokane through the extension of the development area boundary within the existing concession area. This is consistent with a *Recreation* land classification designating the formal ski terrain.[8] Following implementation of either action alternative, vegetation on formal ski trails would be annually mowed to approximately 18 to 24 inches in height. Formal ski trails would also be groomed during the winter to ensure a consistent snow surface. Tree islands within the 279-acre expansion area would be maintained consistent with the "Tree Island Retention" prescription above.

2.3 SCOPE OF THE DRAFT EIS

Based on the results of internal and public scoping, State Parks staff identified specific areas of public concern, which were carried forward to be addressed in this DEIS. Therefore, the primary focus of this SEPA Draft EIS will be on the following resources identified by State Parks as having the potential for being significantly impacted by the Proposed Action. These resources are: Wildlife and Wildlife Habitat, Vegetation, Soils, Watershed Resources, Visual Resources, and Recreation.

2.3.1 Resources not Analyzed in Detail

In addition to analyzing resources that have been identified by State Parks as having the potential to be significantly impacted by the Proposed Action, this Draft EIS includes a discussion of other resources, which were similarly analyzed in the Mount Spokane State Park Master Facilities Plan EIS. Specifically,

[8] Commission direction regarding the management of natural resources within areas classified as "*Recreation*" is discussed in *Commission Policy 73-04-1 Protecting Washington State Parks Natural Resources.* For clarity, Subsection A(1) states that "State Parks will maintain native plants and animals (biodiversity) that occur, or seek to re-establish them where they historically occurred, within those park lands classified by the Commission as Resource Recreation Areas, Natural Areas, Natural Forest Areas, or Natural Area Preserves. **When consistent with recreational use, cultural resources integrity, and other agency objectives, native plants and animals will also be preserved in lands classified as Recreation and Heritage Areas**" (emphasis added).

the Draft EIS will contain a description of the existing conditions and affected environment for the following resources:

- Historic, Cultural and Archaeological Resources[9]
- Air Quality
- Noise
- Land Use
- Transportation and Parking
- Public Services
- Energy/Environmental Health
- Utilities

2.4 MITIGATION MEASURES

In order to minimize potential resource impacts from construction of the proposed project, the Mitigation Measures detailed in Table EIS 2-4 have been incorporated into the Proposed Action. For purposes of this analysis, the definition of mitigation under SEPA can be found in WAC 197-11-768 – Mitigation where:

> *"Mitigation" means:*
> *(1) Avoiding the impact altogether by not taking a certain action or parts of an action;*
> *(2) Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts;*
> *(3) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;*
> *(4) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;*
> *(5) Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and/or*
> *(6) Monitoring the impact and taking appropriate corrective measures.*

Additionally, several alternatives were explored, but not developed in detail. As discussed in section 2.1.1, where feasible, potential effects of the construction of specific elements or groups of elements within the Proposed Action were reduced or eliminated by making revisions to the expansion proposal, consistent with the SEPA definition of mitigation. For example, a two-chairlift concept was

[9] Analysis will comply with Governor's Executive Order 05-05 on Cultural Resources, consultation agreements with interested tribes and the State Historic Preservation Officer (SHPO), and the Programmatic Agreement between Washington State Parks and the Department of Archaeology and Historic Preservation Regarding Implementation of the Governor's Executive Order 05-05 in Washington State.

eliminated to *avoid* impacts to mature forest habitat associated with expansion into the PASEA (see section 2.1.1.1).

Mitigation Measures were devised in the pre-analysis and analysis phases of the planning process to reduce potential environmental impacts associated with project elements. Mitigation Measures come from federal, state, and local laws, regulations and policies; scientific recommendations, or from experience in implementing similar ski area projects.

The bulk of the Mitigation Measures provided in Table EIS 2-4 are considered common practices that ski area managers have historically used in alpine and sub-alpine environments to prevent or decrease potential resource impacts. They are also similar in scope and intent to the Mitigation Measures included in the 2010 Mount Spokane Master Facilities Plan FEIS prepared by State Parks. They are highly effective methods that can be planned in advance and adapted to site conditions as needed. Table EIS 2-4 also presents other management provisions (e.g., development of a Stormwater Pollution Prevention Plan) that would be implemented *to protect resources* during construction, but which are not intended to entirely avoid potential adverse effects to resources.

Mitigation Measures were designed by MS 2000 and specialists involved in this proposal. The potential effects of implementing the Proposed Action assume these Mitigation Measures are applied. In addition to the Mitigation Measures prescribed below for each resource area, MS 2000 would incorporate any conditions of approval from Spokane County and other jurisdictional agencies (e.g., Washington Department of Ecology, State Parks, Washington Department of Fish and Wildlife) during the permitting phase following the selection of an Action Alternative by State Parks. For clarity, if an Action Alternative is selected by State Parks the project would be required to comply with additional permit conditions levied by other jurisdictional agencies, including the development, approval and implementation of a wetland and stream mitigation plan by Spokane County.

Clearing and grading activities necessary to implement either of the action alternatives would result in unavoidable impacts to resources. As mentioned in Chapter 1, the action alternatives have been developed in order to balance the recreational needs of the public and the resource conservation goals of State Parks. However, implementation of either Alternative 2 or 3 would result in impacts to soils and geology (through grading), mature forest (through clearing) and wildlife habitat (through removal and/or conversion of habitat) that could not entirely be mitigated by the mitigation measures proposed. As such, the overall intent of the action alternatives is to minimize the impact of providing lift served alpine skiing within the 279-acre expansion area on these resources. The impacts to these resources are disclosed in Chapter 3.

Table EIS 2-4:
Construction Related Mitigation Measures Incorporated into the Project Proposal

VEGETATION
Understory vegetation would be preserved to the extent possible in all areas designated for flush cutting and/or overstory vegetation removal.
Prior to construction, the disturbance limits of the site would be flagged. Fencing, flagging, or a staked rope line would be established to denote the limits of construction proximate to sensitive resource boundaries.
Topsoil replacement, native plant seeding, and weed-free mulching (as necessary) would be used to stabilize disturbed soils in all areas where grading and soil disturbance would occur to promote native plant re-establishment.
Revegetation would use native plants. Seed mixtures and mulches would be noxious weed-free. To prevent soil erosion, non-persistent, non-native perennials or sterile perennials may be used while native perennials become established.
Local seeding guidelines would be used to determine detailed procedures and appropriate mixes. Preference is given to local seed sources, cultivars, and species available commercially. To avoid weed contamination, all seed purchased shall be certified weed-seed free.
Adequately mark tree clearing limits to avoid errors in clearing limits during construction.
Before ground-disturbing activities begin, identify and locate all equipment staging areas. Establish equipment wash stations at the base of the ski area for construction activities. Each station shall have a filter system, for example at least 6 inches of large cinder or gravel spread over an area 10' x 30'. Filter cloth may be used for temporary stations. The area would be a perched drainage to allow excess moisture to drain after being filtered. Equipment wash stations shall be located at least 200 yards from any natural drainage to avoid contamination. All soiled equipment shall be washed before entering and before leaving the expansion area. This includes construction personnel vehicles in addition to trucks and other heavy equipment. Equipment wash stations shall be monitored frequently and after completion of all construction activities. All weed materials shall be removed promptly.
Monitor all construction areas and roadways within the expansion area annually for at least five growing seasons and treat any non-native species found.
Effective ground cover (mulch) upon completion of ground disturbing activities would meet minimum level of the pre-treatment habitat type.
If any new populations of special status plant species are encountered during the construction process, work would be suspended in that area until State Parks is consulted.
Mount Spokane Ski and Snowboard Park would be required to develop for State Parks the following plans to mitigate adverse effects from the proposed ski area expansion on focal wildlife species and their habitats: a vegetation management plan to provide direction for coarse woody debris management and general ongoing maintenance of vegetation in developed ski trails, a non-native invasive species management plan to control/eliminate non-native invasive plant species, a hazard tree management plan, and a ski trail erosion control plan.
WILDLIFE
If the presence of any special status wildlife species is determined in the area affected by the action alternatives, a State Parks biologist, or equivalent specialist, would be immediately notified and management activities altered as appropriate. If any new populations of special status species are encountered during the construction process, work would be suspended in that area until the State Parks biologist is consulted and potential adverse impacts mitigated.
All large trees and snags (over 20 inches dbh) located in proposed tree islands would be left standing unless they are identified by State Parks as a hazard tree. No formal ski trail clearing would occur within the proposed tree islands.
Where practical, trees felled during ski trail construction will be left within the trails long-term to provide additional wildlife habitat.
During construction, enforce measures to ensure that trash or refuse associated with construction is minimized.
If work between March 1 and July 15 is necessary, a qualified wildlife biologist will conduct preconstruction surveys of the weekly construction footprint for the twenty-one focal wildlife species. This period generally corresponds to the critical breeding and rearing life stages for birds and mammals at Mount Spokane State Park. In the event one or more of these species is detected between March 1 and July 15, construction in the immediate area would cease immediately, and all project activities would relocate to a location approved by a qualified wildlife biologist.
All construction activities should be confined to daylight hours, excluding emergencies.

Table EIS 2-4:
Construction Related Mitigation Measures Incorporated into the Project Proposal

No food/drink should be kept/stored in construction worker vehicles. All windows will be kept closed and doors locked on all vehicles to prevent bear entry.
SOIL AND WATER
A grading and erosion control plan would be developed and submitted to Spokane County for review and approval prior to implementation of proposed project elements that include grading.
MS 2000 would develop a Spill Prevention and Response Plan, which would be included in the Stormwater Pollution Prevention Plans (SWPPP) as part of the construction documents. Fuel, oil and other hazardous materials would be stored in structures placed on impermeable surfaces with impermeable berms designed to fully contain the hazardous material plus accumulated precipitation for a period at least equal to that required to mitigate a spill. Petroleum products would not be discharged into drainages or bodies of water. No fuels or construction machinery would be stored within stream or wetland buffers.
Project-specific Stormwater Pollution Prevention Plans would include additional erosion protection (such as two rows of silt fence, straw bales and/or more permanent structures such as logs) to be provided between streams and construction areas close to stream channels. Water bars will be constructed within the newly disturbed areas to minimize downslope water movement through the site, and to direct sediment laden water away from stream channels. As specified in the project-specific SWPPP, water bars will be lined with erosion control fabric, sod, and/or mulch to prevent failures prior to the establishment of vegetation, as necessary.
Bridge crossings installed over intermittent/perennial channels would be completed in a single span to minimize in-water work. All footings would be constructed above the bankfull channel width. Additional short and long-term erosion control measures (e.g., erosion blanket, straw bales, rip-rap.) and water quality monitoring (e.g., pH, turbidity) would be specified in the SWPPP for the bridge crossing projects consistent with any required Hydraulic Project Approval permitting.
Soil-disturbing activities would not be initiated during periods of heavy rain, spring runoff or excessively wet soils.
Immediately following completion of approved ground disturbing activities and seeding, all areas of ground disturbance would be mulched with weed-free straw, wood chips, bark, jute mat, etc.
In all areas where grading or soil disturbance would occur, stockpile topsoil and re-spread topsoil following slope grading and prior to re-seeding. The stockpiled soil would be protected from wind and water erosion.
Areas determined to have been compacted by construction activities may require mechanical subsoiling or scarification to the compacted depth to reduce bulk density and restore porosity.
Vegetative buffers would be maintained adjacent to any intermittent or perennial drainages and wetlands, to the extent possible and would be flagged or otherwise marked to provide protection during clearing.
Check dams and sediment barriers (i.e., silt fence, weed-free hay bales, wattles, etc.) would be placed in all temporary erosion channels with minimum sufficient spacing to control runoff velocity and encourage sediment deposition. When check dams, sediment barriers, or sediment detention dams fill with sediment and exceed their design effectiveness, sediment would be excavated (by hand or mechanically) and removed from the site to a permanent upland storage area where erosion would not occur.
Logs and logging debris removal would minimize dragging or pushing through soil to minimize disturbances.
In areas where site conditions necessitate (i.e., excessively steep slopes and/or highly erosive soil types), temporary sediment detention basins would be created to detain runoff and trap sediment. Sediment basins would be created within the overall disturbance limits of the applicable project elements. Temporary sediment basins would be reclaimed following reestablishment of permanent vegetation and would likewise be revegetated.

Table EIS 2-4:
Construction Related Mitigation Measures Incorporated into the Project Proposal

On steeper slopes (>30% slope gradient), areas exposed by grading may require implementation of jute-netting or other appropriate measures to further stabilize disturbed soils. Installation should include: • Seeding and mulching of the disturbed area. • Burial of the top end of the netting in a trench of at least 4 inches depth and 8 inches width. The trench shall be backfilled and tamped. • Netting should extend beyond the edge of the mulched and/or seeded area at least 1 foot on the sides and 3 feet on the top and bottom. • The netting should be rolled downslope and secured with staples or pins. • Netting should overlap at least 4 inches on the sides and secured with staples 5 feet apart along the overlap. • The lower end of the uphill strip should overlap the downhill strip at least 1 foot and should be secured with staples 1 foot apart.
Fuel delivery and storage would be located, designed, constructed and maintained to reduce the potential and severity of spills.
GEOTECHNICAL
Forest clearing in areas susceptible to mass wasting would be avoided to the extent practical during trail layout and construction. The area of grading and soil compaction would be reduced by limiting access by construction equipment and drainage structures for stormwater and erosion control would not divert water into areas of mass wasting potential.
For projects proposed in areas susceptible to landslides or within slopes steeper than 60 percent, a qualified engineer or geologist would assist in the final design of ski area facilities to minimize the effects of unstable slopes.
WETLANDS
Apply BMPs for all ground disturbing activities to avoid sediment migration from ground disturbance into wetlands.
Wetlands proximate to potential disturbance zones of project elements would be re-identified and flagged prior to the initiation of construction related activities. Construction limits would be clearly defined prior to construction including buffers required by the permit conditions of Spokane County
AIR QUALITY
Grading areas would be watered, as necessary and practical, to prevent excessive amounts of dust. In the absence of natural precipitation, watering of these areas would occur as practical.
Burning of cleared timber, if required, would occur when air quality standards would not be compromised.
All equipment would be properly tuned and maintained. Idling time would be minimized to the extent practical.
RECREATION
Notices would be posted on summit trailheads and at the Vista House informing visitors about the possibility of encountering construction noise and activities within the PASEA. The notices would also identify where and when construction activities would be taking place
SCENERY RESOURCES
Avoid straight edges where removing trees. The edges of lift lines, trails and structures, where the vegetation is removed, need to use a variable density cutting (feathering) technique applied to create a more natural edge that blends into the existing vegetative cover. Edges would be non-linear, and changes in tree heights along the edges of openings should be gradual rather than abrupt. Soften hard edges by selective removal of trees of different ages and heights to produce irregular corridor edges where possible.
Stumps would be cut as low as possible to the ground to avoid safety hazard.
Regrade to restore a natural terrain appearance. Prior to grading, strip topsoil and save for revegetation. Where there is disturbed ground for new chairlifts including terminals, towers and foundation placements put any excess material back to the area with grading to avoid stockpile of material and maintain a natural appearance at transitions. Any site grading should blend disturbance into the existing topography to achieve a natural appearance and minimize cuts and fills at the transition with proposed grading and existing terrain.
Utilities must be buried, other than communication lines.

Table EIS 2-4:
Construction Related Mitigation Measures Incorporated into the Project Proposal

All disturbed areas shall be revegetated after the site has been satisfactorily prepared. Seeding should be repeated until satisfactory revegetation is accomplished. Reseed with a native seed mixture using a variety of native seed grasses and forbs.
Buildings, towers and terminals would be painted with a color blending with the area.
Chairlift terminals and towers would utilize muted colors to minimize the visual impact to the surrounding area. Bright colors are inappropriate for the forest setting. The colors should be muted, subdued colors because they blend well with the natural color scheme. The colors used for new facilities would include darker colors; greens, browns, navy blue, grays and black.
CULTURAL RESOURCES
If any artifact or human remains are found during project activities, affected tribes and State Parks would be immediately notified and the work in the immediate area would cease.
If any culturally modified tree(s) are encountered during construction, the tree(s) would be retained and preserved.
TRANSPORTATION AND PARKING
A contingency plan addressing closures to the main access road to the ski area due to weather and/or fallen trees will be developed in coordination with WSDOT, State Parks, and MS 2000.
Mount Spokane Ski and Snowboard Park would improve Average Vehicle Occupancy (AVO) through the use of incentives for carpooling and more efficient utilization of the regular and scheduled busing programs from Spokane to the ski area on weekends and holidays.

2.5 LIST OF PERMITS AND APPROVALS REQUIRED FOR IMPLEMENTATION

Construction will be scheduled to minimize seasonal impacts to biological and physical resources. Specifically, construction of facilities involving significant ground disturbance will take place during the dry season (generally summer and fall) to the greatest extent possible. Where practical, ski trail clearing and construction of other facilities (i.e., chairlift terminal and towers) will take place over the snow. Once detailed construction documents are developed, all necessary consultations, permits and approvals will be acquired from the regulatory agencies identified in Table EIS 2-5. A SWPPP will be prepared by MS 2000 to provide documentation for, and to obtain a National Pollution Discharge Elimination System permit for construction activities, as required. The SWPPP will include the development of project-specific Mitigation Measures. Project-specific Mitigation Measures and permit conditions from all construction permits will be incorporated into construction documents and permit applications when judged necessary by the regulatory agencies. The SWPPP will be approved by the Spokane County Building and Planning Department and construction activities will not commence until authorized by the agency.

Table EIS 2-5:
Summary of Permits, Approvals, and Consultation for the Proposed Expansion

Agency	Action/Regulation	Description of Permit/Action
STATE		
Washington Department of Ecology	National Pollution Discharge Elimination System Permit.	Stormwater Permit for stormwater discharges at construction sites.
LOCAL		
Spokane County Building and Planning Department	Building Permit	Authorize construction of chairlift terminals
	Clearing and Grading Permit/Timber Harvesting/ Critical Area Review	Authorize clearing, excavation and fill for ski trail construction

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 SOILS AND GEOLOGY

This section describes the affected environment and the potential effects of ski trail construction and chairlift installation on soils and geologic resources. The scope of the soils resource analysis includes areas proposed for direct disturbance in the 279-acre expansion area. This description of soil and geology resources is based primarily on a review of the USDA Natural Resources Conservation Service (NRCS) Soil Survey of Spokane County and a geotechnical field analysis completed on November 3, 2011.[10]

3.1.1 Affected Environment

The topography of the Study Area extends from approximately 5,800 feet elevation near the summit of Mount Spokane to an elevation of 4,418 feet near the proposed bottom terminal site. Slope gradients vary from approximately 40 to 60 percent on higher elevation areas to relatively flat (less than 5 percent) benched areas. According to the NRCS Soils Resource Report most soils in the park (including the expansion area) have a severe to extreme erosion hazard. This is primarily due to the parent soil material being crystalline granitic bedrock. Field surveys revealed no signs of major soil erosion or landslides. This is primarily due to the undisturbed condition of the expansion area being primarily vegetated with native grasses and trees. Soil types are noted in Table EIS 3.1-1.

A total of five soil map units were identified within the project area (see Illustration EIS 3.1-1).

[10] The geohazard evaluation completed on November 3, 2011 by ALLWEST Testing and Engineering is included as Appendix A.

Table EIS 3.1-1:
Soil Types Identified within the Study Area

Soil Map Unit	NRCS Map Unit Number	Area (acres)
Brickel gravelly ashy silt loam, 15 to 30% slopes	5001	7
Vaywood medial silt loam, 15 to 30% slopes	5080	20
Vaywood medial silt loam, 30 to 60% slopes	5081	206
Bouldercreek ashy silt loam, 15 to 30% slopes	5110	10
Bouldercreek ashy silt loam, 30 to 60% slopes	5111	36
TOTAL		**279**

The soils exposed at the site were field verified as consistent with the described NRCS soil types. The Vaywood medial silt loam (30 to 60 percent slopes), series comprises the majority (74 percent) of the project area with the remaining area being comprised of Bouldercreek ashy silt loam (30 to 60 percent slopes), Vaywood medial silt loam (15 to 30 percent slopes), Bouldercreek ashy silt loam (15 to 30 percent slopes), and Brickel gravelly ashy silt loam (15 to 30 percent slopes).

The following descriptions for these soil types and hydric soil classifications were obtained from the Web Soil Survey website (Natural Resources Conservation Service 2013):

Brickel gravelly ashy silt loam – This soil series is described as a well-drained soil located on the back slopes, shoulders, and summits of mountains. It is typically characterized by a 0- to 1-inch surface layer of slightly decomposed plant material overlying a 3- to 9-inch layer of gravelly ashy silt loam. Below 9 inches, the amount of gravel in the soil typically increases, with cobbles becoming prominent below 19 inches. Bedrock typically occurs at 20 to 40 inches below the ground surface. Depth to water table is typically greater than 80 inches. Brickel gravelly ashy silt loam has moderately high to high permeability and low water capacity. This soil is considered non-hydric by the Natural Resources Conservation Service. It is not known to contain hydric inclusions.

Vaywood medial silt loam – This series is a well-drained soil associated with back slopes and foot slopes of mountains. It is typically characterized by a 0- to 3-inch layer of slightly to moderately decomposed plant material overlying 20+ inches of ashy silt loam. Very gravelly/cobbly sandy loams are typically present below 25 inches. Depth to the bedrock and water table is typically greater than 80 inches. Permeability is moderately high to high and available water capacity is moderate. Vaywood medial silt loam is considered to be a non-hydric soil and is not known to contain hydric inclusions.

Bouldercreek ashy silt loam – This soil series is described as a well-drained soil that occurs on back slopes and foot slopes of mountains. It is typically characterized by a 0- to 3-inch layer of slightly to moderately decomposed plant material overlying 20+ inches of ashy silt loam. Very gravelly sandy loams are typically present between 25 and 33 inches, with extremely cobbly sandy loams present

below 33 inches. Depth to bedrock and water table is typically more than 80 inches. Permeability is moderately high to high and available water capacity is moderate. This soil series is considered to be a non-hydric soil and is not known to contain hydric inclusions.

Due to the highly erosive soils that make up the majority of the park, the Study Area was surveyed for observable evidence of large-scale erosion or landslides. None were observed within or nearby the project area.

Illustration EIS 3.1-1: Soil Mapping Units within the Study Area

Note: See Table EIS 3.1-1 for the soil map units which correspond to the soil map numbers

3.1.2 Alternative 1 – No Action

No new development projects would occur as a result of implementation of the No Action Alternative. Mount Spokane Ski and Snowboard Park would continue to operate under its current configuration and capacity. Because no ground disturbance is proposed under the No Action Alternative, there is no potential to affect geologic and soil resources within the area of potential effect as a result of the No Action Alternative.

3.1.3 Alternative 2 – Proposed Action

Implementation of Alternative 2 would result in approximately 43.5 acres of flush cut tree removal and approximately 32.6 acres of grading to construct the upper and lower terminals, chairlift towers and seven ski trails.

The majority of tree removal, approximately 34.1 acres, would occur on the Vaywood medial silt loam, 30 to 60 percent slopes, while the remaining 9.4 acres would occur over the other four soil units (see Table EIS 3.1-2). In areas where tree removal is prescribed, trees would be flush cut leaving the root systems in place to minimize soil mobility; however, ground cover would be revegetated where it is disturbed by tree removal activities. With tree removal, there would be a reduction in water uptake, as well as an increase in peak runoff and timing. As a result, maintaining a dense ground cover in ungraded areas would help reduce erosion potential and improve infiltration, minimizing these effects.

Table EIS 3.1-2:
Acreage of Tree Removal and Grading by Soil Map Unit

Soil Map Unit	NRCS Map Unit Number	Alternative 2 Acreage	Alternative 3 Acreage
TREE REMOVAL			
Brickel gravelly ashy silt loam, 15 to 30% slopes	5001	0.3	0.9
Vaywood medial silt loam, 15 to 30% slopes	5080	3.8	5.4
Vaywood medial silt loam, 30 to 60% slopes	5081	34.1	44.1
Bouldercreek ashy silt loam, 15 to 30% slopes	5110	0.2	2.2
Bouldercreek ashy silt loam, 30 to 60% slopes	5111	5.1	6.6
Tree Removal Total		**43.5**	**59.3**
GRADING			
Brickel gravelly ashy silt loam, 15 to 30% slopes	5001	0.7	0.6
Vaywood medial silt loam, 15 to 30% slopes	5080	5.5	3.5
Vaywood medial silt loam, 30 to 60% slopes	5081	16.2	4.7
Bouldercreek ashy silt loam, 15 to 30% slopes	5110	5.0	3.0
Bouldercreek ashy silt loam, 30 to 60% slopes	5111	5.2	3.5
Grading Total		**32.6**	**15.3**
TOTAL		**76.1**	**74.6**

Grading removes vegetative cover and topsoil that under natural conditions provide soil stability and allow for infiltration. Under Alternative 2, grading would occur within 16.2 acres of Vaywood medial silt loam, 30 to 60 percent slopes (see Table EIS 3.1-2), while approximately 5 acres of grading would occur within each of the following soil units: Vaywood medial silt loam, 30 to 60 percent slopes; Bouldercreek ashy silt loam, 15 to 30 percent slopes; and Bouldercreek ashy silt loam, 30 to 60 percent slopes. Minimal grading would occur within the Brickel gravelly ashy silt loam, 15 to 30 percent slopes. Although these soils range from moderate to high erodibility, soil mobility would be minimized during and after construction through implementation of temporary and permanent erosion and sediment control measures. After construction, re-spreading topsoil, or other organic amendment, and establishing successful vegetation on ski slopes would be essential to reducing erosion from runoff. Additionally, a closely spaced network of water bars would manage the volume and velocity of runoff, by interrupting overland flow and routing water onto slopes with native vegetation or armoring. Implementation of this and other Mitigation Measures identified in Table EIS 2-4, would minimize the effects of grading on these soils.

An erosion and sediment control (ESC) plan would be developed and submitted to Spokane County prior to the initiation of construction activities, identifying existing and proposed topography as well as environmental controls (e.g., erosion and sediment controls).

Native material would be excavated for footer construction, temporarily stockpiled, and broadcast in the disturbance area to establish final grade. Excess material excavated from the bottom terminal will be hauled via existing roads to be used as fill at the top terminal site or disposed of at an authorized fill site. The spoils will be stabilized for long-term storage with erosion and sediment control BMPs per the Mitigation Measures listed in Table EIS 2-4. No specific fill material would be required to construct the new chairlift terminals or towers. Areas of bare soil will be revegetated and mulched. At project completion, approximately 0.1 acre of new impervious surfaces would occur in the expansion area primarily from the covered mechanical space above the new chairlift terminals.

3.1.4 Alternative 3 – Mitigated Proposed Action

Impacts to the soils resource would be slightly less under Alternative 3 than under Alternative 2 because less surface grading is proposed. Implementation of Alternative 3 would require 59.3 acres of tree removal and 15.3 acres of grading to construct the upper and lower terminals, chairlift towers and seven ski trails.

The majority of tree removal would occur on 44.1 acres of Vaywood medial silt loam, 30 to 60 percent slopes, while the remaining 15.2 acres occurring on the other four soil units (see Table EIS 3.1-2). As discussed under Alternative 2, root systems would be left in place to minimize soil disturbance and revegetation would occur where ground cover was disturbed. With tree removal, there would be a reduction in uptake as well as an increase in peak runoff and timing. Accordingly, maintaining a dense ground cover in ungraded areas would help reduce erosion potential and improve infiltration, minimizing these effects.

Under Alternative 3, grading would occur on 4.7 acres of Vaywood medial silt loam, 30 to 60 percent slopes (see Table EIS 3.1-2), while approximately 3 acres of grading would occur within each of the following soil units: Vaywood medial silt loam, 30 to 60 percent slopes; Bouldercreek ashy silt loam, 15 to 30 percent slopes; and Bouldercreek ashy silt loam, 30 to 60 percent slopes. Minimal grading would occur within the Brickel gravelly ashy silt loam, 15 to 30 percent slopes. Grading would remove the vegetative cover and topsoil that under natural conditions provide soil stability and allow for infiltration. As discussed above, impacts from increased runoff volume and velocity would be minimized through re-spreading topsoil or other organic amendment, successful revegetation, water bars, and other Mitigation Measures identified in Table EIS 2-4 and the ESC plan.

Chairlift installation would occur as discussed above for Alternative 2. Implementation of erosion and sediment control BMPs per the Mitigation Measures listed in Table EIS 2-4, would be required. At project completion, approximately 0.1 acre of new impervious surfaces would occur in the expansion area primarily from the covered mechanical space above the new chairlift terminals.

3.1.5 Mitigation Measures

Potential direct and indirect effects of the action alternatives would be minimized through implementation of the BMPs and Mitigation Measures described in Table EIS 2-4 and through project specific operational plans.

3.1.6 Cumulative Effects

Cumulative impacts are the effects that may result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Generally, an impact can be considered cumulative if: a) effects of several actions occur in the same locale; b) effects on a particular resource are similar in nature; and c) effects are long-term in nature. Potential areas where cumulative impacts to soil and geological resources as a result of the construction and operation of new ski area facilities are discussed below.

Past development in the 279-acre expansion area has resulted in limited tree removal, grading, and installation of developed facilities. Cumulatively, past construction on state lands in and in the vicinity of the expansion area include the construction of Chair 4 Road, the Vista House, the Summit Road, ski area facilities at the summit of Mount Spokane, and communication towers. These previous construction projects have changed sediment yield, soil compaction and impermeable surface between pre-development conditions and present day recreational area development. Changes in sediment yield and soil compaction are primarily temporary and associated with construction activities; however, permanent developments such as roads and buildings would continue to result in increased impermeable surfaces. Future projects that could cumulatively impact the Study Area include implementation of the Comprehensive Trail Plan, which is part of the 2010 Master Facilities Plan. The Comprehensive Trail Plan contemplates a multi-use trail in the PASEA, depending upon the land classification adopted (see Section II).

Long-term effects to soil and geology resources occur from a loss of geologic stability or soil productivity. The construction of impervious surfaces serves as a surrogate for measuring long-term losses in soil productivity. The replacement of soils with impervious surfaces also alters the soil permeability and its ability to absorb water. No identified cumulative effects would alter geologic stability; therefore, geologic stability is not discussed in this cumulative effects analysis.

In the context of past, present and reasonably foreseeable effects, the contribution of the action alternatives to overall long-term cumulative impacts is minimal, with 0.1 acre of new impervious surfaces (i.e., lift terminals) for Alternative 2 and Alternative 3, with respect to permanent structures being constructed. Implementation of the BMPs outlined in Table EIS 2-4 would help manage soil movement and sedimentation within the project area. Cumulatively, it is likely that long-term changes in soil structure due to a transition from a forested condition to meadows associated with ski trails would over time result in changes to soil hydrology due to changes in both vegetation and contours as a result of the developed ski runs. No other past, present or reasonably foreseeable projects were identified that would add cumulatively to soil and geology resources in the Study Area.

3.2 WATERSHED RESOURCES

3.2.1 Introduction

The Study Area for the watershed resources analysis is approximately 279 acres in size and encompasses the proposed expansion area. Areas immediately outside this analysis were also reviewed to ensure off site wetland and/or stream buffers (as defined by Spokane County) did not extend into the proposed expansion area. The Mount Spokane Study Area encompasses the upper portions of the Water Resource Inventory Area (WRIA 57 – Middle Spokane River). This section presents the analysis of watershed resources as three distinct topics: Streams, Wetlands, and Water Quality. Documents frequently used as references during this analysis include: *Wetland Categorization/Buffer Establishment Stream Typing/Buffer Establishment PASEA (Towey 2011),Wetland Delineation Report Mount Spokane Ski and Snowboard Park Proposed Expansion Area (ICF 2013)* and *Watershed Management Plan – Water Resource Inventory Area 55*; *Little Spokane River & Water Resource Inventory Area 57 Middle Spokane River* (Spokane County 2006). The wetland delineation report authored by ICF in 2013 is included in this EIS as Appendix D.

The primary focus of the analysis of the affected environment and potential impacts to watershed resources from the action alternatives is at the site scale (Mount Spokane Study Area). Since impacts at a given point in a watershed may be transmitted downstream, potential effects to watershed resources are also analyzed at the watershed scale, as well.

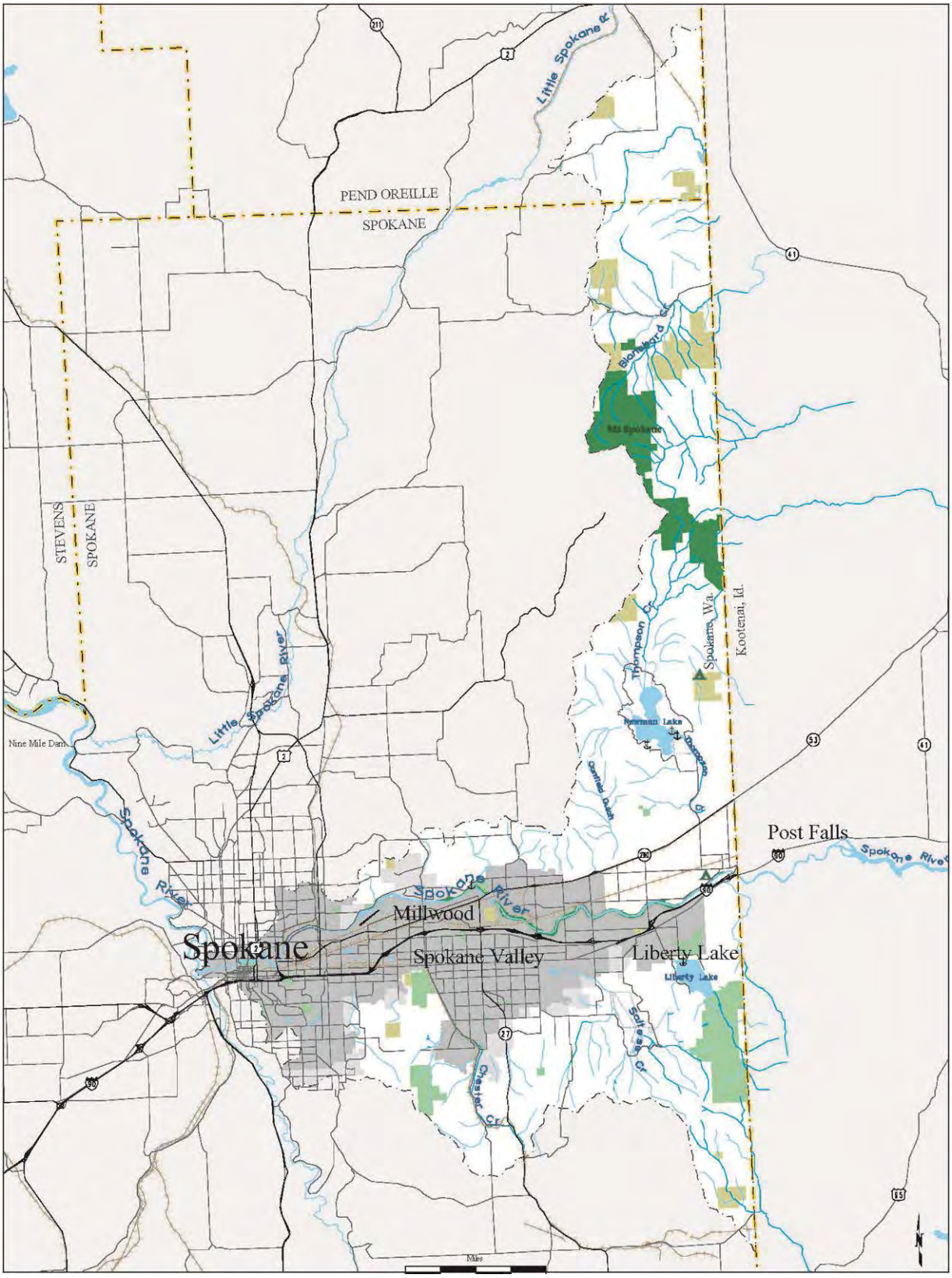
Direct impacts to Watershed Resources would include clearing vegetation (over 3 feet high) for ski trails that cross streams and wetlands and construction activities within streamside areas that would interrupt riparian functions.

Indirect impacts would include construction of impervious surfaces, removal of natural vegetation (affecting hydrologic function), removal or maintenance of vegetation in wetlands or streams, construction activities that result in water quality degradation in streams and wetlands, introduction of noxious weeds or other non-native species from construction activities, changes in land cover that alter flow rates and discharge timing, and windthrow impacts.

The Study Area is situated at elevations ranging from approximately 5,800 feet elevation near the summit of Mount Spokane to an elevation of 4,418 feet near the proposed bottom terminal site for the proposed chairlift. The project area is part of the Middle Spokane River watershed, often described for watershed planning purposes as Water Resource Inventory Area (WRIA) 57. WRIA 57 contains less than 10 percent of the contributing natural drainage of the Spokane Basin. Most of the Middle Spokane River watershed lies in Idaho. Surface waters in the Study Area convey water into Blanchard Creek (Linsey 2011). The Blanchard Creek drainage flows north and east across the Idaho border into Blanchard Lake adjacent to Highway 41. Within the Blanchard Drainage Basin, 20 percent of the water in Blanchard Creek is generated within the park on the north, undeveloped portion of the mountain. Because of the elevation and forest condition, the percentage of the basin's contribution to stream flow is likely reduced in winter and expanded in summer (Washington State Parks 2010a).

Surface water quality issues in WRIA 57 include heavy metals, dissolved oxygen, pH, temperature, PCBs and sediment. Heavy metal concentrations are primarily due to mining activities in Idaho, whereas the remaining water quality issues are likely related to wastewater treatment plant effluents, industry, or land use activities (Spokane County 2006). Illustration EIS 3.2-1 graphically illustrates WRIA 57 and the position of Mount Spokane in the watershed.

Illustration EIS 3.2-1:
Middle Spokane Water Resource Inventory Area (WRIA) #57



3.2.2 Affected Environment

3.2.2.1 Streams

The streams identified in the Study Area flow into Blanchard Creek and eventually the Middle Spokane River watershed. The primary source of hydrology to ephemeral and perennial stream channels within the Study Area is runoff from snow melt and seasonal storm events.

Streams in the Study Area were characterized consistent with the Washington Department of Natural Resources (DNR) Water Typing System. The DNR typing system is a system for classifying streams and other water bodies to determine if they are utilized by fish, or whether they experience perennial or seasonal flow.

The water type classifications currently in use are described in the forest practices rules WAC 222-16 (see Section 031). Water types are based on either a stream or waterbody's designation as a significant water, on the likelihood that a stream is potentially used by fish based on its size and gradient, and/or whether a stream flows year-round (perennial). If a stream or waterbody is known to be used by fish, or fish are observed within it, it is classified as a fish-bearing water (DNR 2011).

Table EIS 3.2-1 describes the water type designations in use by DNR Forest Practices:

Table EIS 3.2-1:
Water Type Classifications

Water Type	Description
Type "S" = Shoreline (formerly type 1)	Streams and waterbodies that are designated "shorelines of the state" as defined in chapter 90.58.030 RCW.
Type "F" = Fish (formerly type 2 or 3)	Streams and waterbodies that are known to be used by fish, or meet the physical criteria to be potentially used by fish. Fish streams may or may not have flowing water all year; they may be perennial or seasonal.
Type "Np" = Non-Fish Perennial (formerly type 4)	Streams that have flow year-round, but do not meet the physical criteria of a Type F stream. This also includes streams that have been proven not to contain fish using methods described in Forest Practices Board Manual Section 13.
Type "Ns" = Non-Fish Seasonal (formerly type 5)	Streams that do not have surface flow during at least some portion of the year, and do not meet the physical criteria of a Type F stream.

Source: DNR 2011

The wetland delineation performed during the summer of 2013 identified ten stream segments in the Study Area. The ten streams were determined to be unnamed tributaries to Blanchard Creek and were classified as Type Np waters (see Appendix D and Figure EIS-2). Only streams that exhibited perennial flow at the time of the site visit were included in the delineation mapping. Each of these drainages was followed upslope to the point where water first began flowing over the ground surface (i.e., the perennial initiation point).

Table EIS 3.2-2:
Characteristics of the Delineated Streams in Project Site

Feature Name	Receiving Water	WDNR Stream Type[a]	Minimum Buffer Width (feet)[b]	Approximate Length within Project Site (feet)
Stream 1	Blanchard Creek	Np	75	191
Stream 3a	Blanchard Creek	Np	75	1,838
Stream 3b	Blanchard Creek	Np	75	1,124
Stream 4a	Blanchard Creek	Np	75	1,817
Stream 5a	Blanchard Creek	Np	75	403
Stream 5b	Blanchard Creek	Np	75	2,206
Stream 6a	Blanchard Creek	Np	75	868
Stream 6b	Blanchard Creek	Np	75	564
Stream 6c	Blanchard Creek	Np	75	885
Stream 7	Blanchard Creek	Np	75	143
TOTAL				**10,451**

[a] Stream type based on WDNR Stream Typing System per WAC 222-16-031.
[b] Spokane County buffer widths determined per Spokane County Code Section 11.20.060(C)(1)(h)

The streams observed typically consist of relatively straight, narrow, v-shaped channels with gradients greater than 20 percent. Channel widths are typically 1 to 2 feet at the perennial initiation point (PIP) and gradually increase to 3 to 4 feet wide by the time the stream exits the project site (i.e., northern portion of the Study Area). Offsite, these channels continue to widen as they move downslope, with channel widths of up to 6 feet observed along the Chair 4 Road at the outer edge of the PASEA. Flow rates observed at the time of the site visits were typically less than 0.5 cubic feet per second (cfs), with a few streams flowing at 1 to 2 cfs.

3.2.2.2 Wetlands

The 2013 wetland delineation confirmed and updated the reconnaissance level survey work performed in support of the 2011 SEIS. As a result, five wetlands were identified and mapped throughout the entire Mount Spokane Study Area for impact analysis. Wetlands were identified and mapped using the three-parameter approach outlined in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987). Delineated wetlands include one large palustrine scrub-shrub (PSS)/slope wetland with palustrine emergent (PEM) components (Wetland A), and four smaller PSS/slope wetlands (Wetlands B, C, D, and E). These wetlands are further discussed below.

Wetlands were also classified using the Washington Department of Ecology (DOE) Eastern Washington Wetland Rating System. The “rating” categories are intended to be used as the basis for developing standards for protecting and managing the wetlands to reduce further loss of their value as a resource. Some decisions that can be made based on the rating include the width of buffers needed to protect the wetland from adjacent development, the mitigation ratios needed to compensate for impacts to the wetland, and permitted uses in the wetland. Spokane County regulates wetland buffers based on the DOE

wetland rating form through the Spokane County Critical Areas Ordinance (CAO). The DOE rating system uses three categories (e.g., water quality functions, hydrologic functions, and habitat functions) to determine the significance, rarity, replaceability, and functionality. Wetlands providing the highest and most unique functions and values are Category 1 wetlands, and wetlands that have the lowest levels of functions (scores less than 30 points) are Category IV wetlands (DOE 2007).

The wetlands identified in the field are summarized in Table EIS 3.2-3, and are rated as Category II-IV wetlands.

Table EIS 3.2-3:
Characteristics of the Delineated Wetlands in Project Site

Feature Name	Cowardin Class[a]	HGM Class[b]	Ecology Wetland Rating[c]	Minimum Buffer Width (feet)[d]	Area in Project Site (acres)
Wetland A	PSS, PEM	Slope	Category II	110	2.70
Wetland B	PSS	Slope	Category II	75	0.41
Wetland C	PSS	Slope	Category IV	40	0.05
Wetland D	PSS	Slope	Category IV	40	0.79
Wetland E	PSS	Slope	Category II	75	0.31
TOTAL					**4.26**

[a] Cowardin Class of wetland within Study Area based on *Classifications of Wetlands and Deepwater Habitats of the United States* (U.S. Fish and Wildlife Service 1979).
[b] HGM Class of wetlands within Study Area based on *A Hydrogeomorphic Classification for Wetlands* (Brinson 1993) and the additional classification guidance provided in the *Washington State Wetland Rating System for Eastern Washington* (Hruby 2004).
[c] Ecology rating based on the *Washington State Wetland Rating System for Eastern Washington* (Hruby 2004), data forms provided in Appendix D.
[d] Spokane County buffer widths determined per Spokane County Code Section 11.20.050(C), Alternative 3.

Wetland A

Wetland A is the largest wetland occurring in the Study Area and is located in the southern portion of the project site, just north of the former location of the historic Mt. Spokane ski lodge (see Figure EIS-14 and Figure 11 of Appendix D). It consists of a relatively large PSS/slope wetland that extends offsite to the south. Wetland A is associated with multiple mid-slope seeps and contains the PIPs of two stream channels, both of which flow to Burping Brook. It is primarily dominated by scrub-shrub vegetation but includes a small area of PEM wetland located in a relatively flat area near in its central portion.

Wetlands B and C

Wetland B and C are PSS/slope wetlands located in the northern portion of the project site, along a perennial tributary (Stream 3a) to Blanchard Creek (see Figure EIS-14 and Figure 11 of Appendix D). They consist of PSS/slope wetlands that occur on small topographic benches that have developed on moderately steep forested slopes. Based on only the functions scores from the DOE rating form, both

Wetlands B and C would be classified as Category IV wetlands. However, due to the presence of greater than 50 percent areal cover of Sitka alder, the classification of Wetland B was adjusted to Category II.

Wetlands D and E

Wetlands D and E are PSS/slope wetlands that are associated with mid-slope seeps (see Figure EIS-14 and Figure 11 of Appendix D). Both are located upslope from perennial stream channels that drain to Blanchard Creek. Wetland D is located offsite to the northwest and is included in this report because it is within 150 feet of the project site. Wetland E is located in the northern portion of the project site, upslope from Stream 1. Like Wetlands B and C, these wetlands are situated on small, relatively flat benches that occur on moderately steep forested slopes.

Based on only the functions scores from the DOE rating form, both Wetlands D and E were classified as Category IV wetlands. Similar to Wetlands B and C, Wetland E has 50 percent areal cover by Sitka alder, therefore it was re-classified as a Category II wetland.

3.2.2.3 Water Quality

No water quality monitoring stations occur within the Study Area or within Mount Spokane State Park. The main source of potential water quality degradation within the Study Area would be vehicular traffic during the summer as visitors to the Vista House travel to the summit of Mount Spokane. Vehicular traffic has the potential to pollute surface waters in the Study Area as oil and tire wear particles have the potential to be washed from the Summit Road into nearby drainages.

3.2.3 Environmental Consequences

3.2.3.1 Alternative 1

Streams

Under Alternative 1, no expansion is proposed; therefore, no impacts to streams would occur. As a result, the condition of the streams within the Mount Spokane Study Area would remain unchanged. Impacts on water quality from the existing access road would continue to occur under Alternative 1.

Wetlands

Under Alternative 1, the proposed expansion of Mount Spokane Ski Area would not occur, and no direct or indirect impacts to wetlands would occur. Therefore, the condition of the wetlands within the Mount Spokane Study Area would remain as described in section 3.2.2.2 – Affected Environment.

Water Quality

Under Alternative 1, the Mount Spokane Ski Area expansion would not occur; therefore, no impacts to water quality would occur.

3.2.3.2 Alternative 2

Streams

Under Alternative 2, no direct impacts to stream channels within the Study Area would occur; therefore, no direct impacts to streams would result. Construction of the new chairlift and seven ski trails would require crossing several streams (as depicted in Figure EIS-15). Wooden or snow ski bridges at the ski trail drainage crossings would be utilized at these locations so that culverts would not be needed. In the event a culvert is needed to safely span the drainage, a bottomless arch culvert would be the primary structure to develop the crossing. Corduroy crossings (felled tree debris) over intermittent and perennial streams would be utilized during the construction phase (if necessary) and removed after the completion of construction.

Approximately, 3.9 acres of direct impacts to stream buffers from clearing and/or grading would occur under Alternative 2. Most of the proposed grading and/or clearing work would result in short-term, direct impacts to stream buffers because the areas of proposed grading or clearing would be restored through replacement of topsoil and/or revegetation with native species. Following construction, these areas would be maintained as ski trails, so there would be a long-term direct impact to some buffer functions, but functions such as filtering sediment, floodwater storage, and stream bank stabilization would not be affected over the long-term because the trails would be maintained in a modified vegetative condition. These strategies would be further detailed in a mitigation plan submitted with permit documents to Spokane County.

Alternative 2 would result in approximately 32.6 acres of grading to construct chairlift terminals, towers and portions of the ski trails. During construction, the potential for short-term construction related impacts to water quality could occur due to runoff from construction areas providing a vector for sediment to enter streams.

The potential impacts to these stream functions would be avoided and or minimized through implementation of the Mitigation Measures detailed in Table EIS 2-4 to reduce soil erosion and sediment yield through implementation of a SWPPP. Based on the successful implementation of Mitigation Measures, there would be no measurable long-term indirect impacts to streams under Alternative 2. However, short-term indirect impacts to these stream reaches may occur during the construction of ski trails and other facilities. MS 2000 would also develop a Spill Prevention and Response Plan as part of the construction documents. Petroleum products will not be discharged into the drainages or bodies of water. No fuels or construction machinery will be stored adjacent to waterbodies.

Wetlands

Wetlands can be directly impacted by construction activities that require grading, which displaces wetland area and removes all functionality of the wetland through the placement of fill material and/or soil excavation in wetlands. Grading activities can also modify the hydrology of wetlands by changing the

existing drainage patterns, which can alter the hydrologic regime and cause a wetland to become impaired and/or defunct.

As identified in Figure EIS-15, one proposed trail (Trail 1) would be located in an area containing a slope wetland (Wetland A). Trail 1, located on the eastern edge of the Study Area is proposed in a relatively open area. This trail is proposed in an area where blowdown of large trees is extensive and is currently dominated by dense thickets of Sitka alder (shrub) within the wetland complex, which is typically less than 10 feet tall (see Appendix D). Additionally, Trail 6 would be located through a portion of Wetland E, a 0.31 acre Category II wetland. Implementation of Alternative 2 would not result in the filling of or any grading in wetland features, however limited vegetation management (e.g., mowing, tree island removal) would be necessary to formalize these ski trails resulting in a change in the vegetative structure within the wetlands. Therefore, Alternative 2 would result in approximately 1.9 acres of direct wetland impacts related to vegetation management and 4.0 acres of vegetation management within wetland buffers.

For clarity, State Parks approval of the project proposal would not authorize construction within these features (e.g., wetlands, streams) on its own, as the project would require the submittal, review and approval of a wetland/stream mitigation plan by Spokane County.

Development activities in the uplands adjacent to wetlands can indirectly affect wetland functions. The location of the development activity in relationship to the wetland and the type of development activity dictates the degree of impact and what wetland functions would be affected. Primary indirect impacts to wetlands typically occur from changes in hydrology and sediment sources. Under Alternative 2, grading would take place upslope of all the wetlands identified in Figure 11 of Appendix D and Figure EIS-14. As a result, the potential for increased sediment delivery to these wetlands would be increased during construction. Implementation of the Mitigation Measures detailed in Table EIS 2-4 would reduce the potential for these indirect impacts. The introduction of new disturbance adjacent to or within wetland buffers (as detailed in the Spokane County Critical Areas Ordinance), such as areas of grading activities and ski trail clearing would also result in increased potential for the introduction of noxious species into wetlands. Implementation of the Mitigation Measures outlined in Table EIS 2-4 would reduce the risk of the introduction of noxious species into wetlands as a result of the indirect impacts from clearing, grading, and utility trenching within the immediate vicinity of wetlands in the Mount Spokane Study Area.

Operational and maintenance activities that indirectly impact wetlands would primarily be limited to wetlands on proposed ski trails under Alternative 2. These activities include mowing vegetation, the maintenance of contour ditch lines (i.e., water bars), and snow management. Potential impacts to wetlands from operation and maintenance include increased sedimentation and the growth of noxious weeds. These impacts are usually long-term because they would cause wetlands to lose some of their functions.

Water Quality

Direct impacts to water quality are impacts that would occur from new point sources, either chemical or thermal. Activities that are most likely to indirectly impact water quality within the Mount Spokane Study

Area are those that may occur within wetland or stream buffers, such as clearing of riparian vegetation, construction of ski area facilities, or grading for ski trails. Potential indirect impacts to water quality include the following:

- Increased sediment yield to streams and wetlands from clearing and grading,
- Increased pollutant runoff from construction equipment into streams and wetlands, and
- Increased water temperatures resulting from the removal of riparian vegetation and subsequent increases in solar radiation.

There would be no new point sources of pollution (chemical or thermal) that would affect water quality within the Middle Spokane River watershed; therefore, no direct impacts to water quality would occur under Alternative 2. Indirect impacts to water quality could occur from the proposed project through increased sediment yield and changes in turbidity, pH, stream temperature, and dissolved oxygen in the perennial streams that flow through and out of the Study Area. However, due to the undeveloped nature of the park (reducing cumulative watershed effects) and the relatively small drainage basin these streams collect, these impacts are not anticipated to be measurable at the watershed scale.

Under Alternative 2, clearing and grading for chairlift and trail construction within wetland or stream buffers would increase the risk of erosion and sediment yield to streams and wetlands. Research has indicated that silt fences trap 90 percent (or more) of sediment from hillslope erosion (Robichaud and Brown 2002). Additionally, revegetation of exposed hillslopes has been shown to reduce erosion by greater than 70 percent using native vegetation (Grace 2002). The use of silt fences would constitute a short-term measure during construction (silt fences are typically removed after the site stabilizes) and could reduce potential sediment yields to streams by 90 percent, although it has been estimated that actual effectiveness would be 60 to 65 percent (Grace 2002).

Implementation of Mitigation Measures described in Table EIS 2-4 (e.g., SWPPP, Spill Prevention and Response Plan), as well as the review conducted by Spokane County, would minimize the potential for short-term, indirect delivery of pollutants to streams and wetlands during construction. The requirements of the SWPPP would ensure state water quality standards are met through the water quality monitoring program and any necessary corrective actions would be taken on an as-needed basis.

3.2.3.3 Alternative 3

Streams

Similar to Alternative 2, no direct impacts to stream channels within the Study Area would occur; therefore, no direct impacts to streams would result. Under Alternative 3, ski trail crossings of perennial streams would be as described in Alternative 2. Construction of ski trails and perennial crossings would require approximately 2.6 acres of vegetation clearing and/or grading within stream buffers to formalize ski trails. The short and long-term impacts to these buffers would be as described in Alternative 2.

Wetlands

Alternative 3 would require approximately 0.34 acre of vegetation clearing within the buffer of Wetland A to formalize Trail 1.This buffer impact may be reduced or eliminated altogether through the use of buffer averaging during the final approval process with Spokane County. Additionally, approximately 0.13 acre and 0.62 acre of direct impacts would occur within Wetland E and its buffer, respectively, due to vegetation management (e.g., mowing, tree island removal) necessary to construct Trail 6. Potential impacts to wetlands and wetland buffers from clearing would be reduced through implementation of Mitigation Measures (e.g., preparation of a wetland mitigation plan) outlined in Table EIS 2-4.

For clarity, Alternative 3 adjusts the alignment of Trail 1 to avoid the slope wetland categorized during the 2013 wetland delineation (discussed above in section 3.2.2.2), reducing the impact on this resource and its associated buffer by 4.8 acres when compared to Alternative 2 (see Figure EIS-16).

Water Quality

Under Alternative 3, no long-term impacts to water quality in WRIA 57 are anticipated. By design, implementation of Alternative 3 would result in 17.4 acres less grading when compared to Alternative 2. Therefore, the potential for short-term, construction related impacts during project implementation would be less than Alternative 2.

3.2.4 Mitigation Measures

Potential direct and indirect effects to this resource from the action alternatives would be minimized through implementation of the BMPs and Mitigation Measures described in Table EIS 2-4 and through project specific operational plans and/or approvals (e.g., Spokane County).

3.2.5 Cumulative Effects

Cumulative impacts are the effects that may result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Generally, an impact can be considered cumulative if: a) effects of several actions occur in the same locale; b) effects on a particular resource are similar in nature; and c) effects are long-term in nature. Potential areas where cumulative impacts to watershed resources may occur as a result of the construction and operation of new ski area facilities are discussed below.

Projects and construction activities occurring within wetlands and streams have the potential to alter plant communities and functional processes of the riparian zone. These typical wetland processes include sediment filtration, stream bank stabilization, floodwater storage (duration and timing of flow), LWD recruitment, and stream channel shading (USDA 2007). Conversion of forest to meadow is also likely to alter hydrologic functions within the project area (e.g., evapotranspiration reduction, infiltration rates). While wetland and stream buffer widths typically encompass an area greater than the functional riparian zone, construction activities within the buffers occur in closer proximity to watershed resources. Therefore, there is a higher potential for projects occurring within wetland and stream buffers to impact

watershed resources compared to projects occurring outside. As such, impacts to wetland and stream buffers can be used as a surrogate measure for long-term cumulative impacts to Watershed Resources. Therefore, this analysis considers all past, present, and reasonably foreseeable future projects with effects occurring in proximity to wetlands and streams.

Short-term cumulative impacts to Watershed Resources can occur when multiple projects overlap in space and time. Future projects that may overlap in space and time with the action alternatives include implementation of the Comprehensive Trail Plan, which is part of the 2010 Master Facilities Plan. The Comprehensive Trail Plan contemplates a multi-use trail in the PASEA, depending upon the land classification adopted (see Section II). For purposes of this analysis, short-term impacts are considered with regard to water quality. Impacts to water quality are most likely to result from increased sedimentation and contaminants such as equipment oil, grease, or fuel spills. Since the use of BMPs is typically required at the site scale to minimize erosion, short-term water quality impacts are not expected to be measurable at large scales (i.e., the watershed scale).

3.3 VEGETATION

This section describes the vegetation communities, the occurrences of known species and habitats of conservation concern, and noxious weeds within the Mount Spokane Study Area. This section is divided into two main parts—Affected Environment and Environmental Consequences. The Affected Environment contains descriptions of the existing conditions within the Mount Spokane Study Area, defined as the proposed 279-acre expansion area. All of the proposed projects (e.g., chairlift, ski trails) described in Alternatives 2 and 3 occur entirely in this 279-acre Study Area. The Environmental Consequences section analyzes the potential impacts to the vegetation communities, known species and habitats of conservation concern, and noxious weeds as a result of the implementation of the No Action Alternative and action alternatives. The content of this chapter is informed by data collected during the botanical surveys (summarized in Appendix B – *Biological Surveys Conducted in the SEIS Analysis Area at Mount Spokane State Park During 2010*) that considered an expanded Study Area of approximately 490 acres and the wildlife habitat surveys summarized in Appendix E – *Draft Habitat Management Plan for Mount Spokane Ski and Snowboard Park Proposed Expansion Area* that analyzed vegetative communities within and extending 800 meters outside the 279-acre Study Area. These studies were intended to inform the pre-planning process and to provide a description of vegetative communities in adjacent, undisturbed forested areas (e.g., potential edge habitat). The expanded Study Area also includes a description of vegetation communities within the now-eliminated connector trail corridor between Chair 4 and Chair 6 (see section 2.1.1.3).

3.3.1 Introduction

The Mount Spokane Study Area occupies a unique position on the landscape in Spokane County. It is the highest point in the county and is located approximately 22 miles northeast of the City of Spokane,

Washington. The Mount Spokane Study Area is located entirely within the boundaries of Mount Spokane State Park.

State Parks and MS 2000 have conducted field surveys for vegetation within and adjacent to the Study Area between 2006 and 2010 (see Table EIS 3.3-1). Additional vegetation surveys (ICF 2013) were conducted during development of the Draft Habitat Management Plan, including coring 108 trees to identify the distribution and presence of older trees within the Study Area (see Appendix E).

Table EIS 3.3-1:
Field Surveys for Vegetation in or adjacent to the Mount Spokane Study Area 2006 to 2013

Date	Report Title	Author(s)
2006–2007	Forest Health Assessment and Plan for the 2006–2007 project area of Mount Spokane State Park	Pacific Biodiversity Institute
2009	2009 Vegetation Impacts Assessment of Proposed Trail Additions in Mount Spokane State Park	Pacific Biodiversity Institute
2010	Biological Surveys Conducted in the SEIS Analysis Area at Mount Spokane State Park During 2010	Pacific Biodiversity Institute
2013	Draft Habitat Management Plan Mount Spokane Ski and Snowboard Park Proposed Expansion Area	ICF International

Biologists and other specialists conducted field surveys within the Mount Spokane Study Area, reviewed literature, interpreted color aerial photographs, and contacted state and federal resource agencies to accumulate information on vegetation resources. Resources consulted include existing literature and GIS datasets in the Mount Spokane area (Smith and Morrison 2009; Smith 2009; Snetsinger and White 2009; Wooten and others 2009; Morrison and others 2007; Crawford 1993). Biologists also reviewed species lists of potential rare plants listed by the Washington Natural Heritage Program based on species on or adjacent to the Colville National Forest.

Proposed management direction activities for vegetation are included in the Mitigation Measures as described in Chapter 2 (see Table EIS 2-4). The Mitigation Measures provide guidance for the long-term management of vegetation in the Mount Spokane Study Area and identify measures for managing vegetation in ski trails and around supporting ski facilities and infrastructure. These Mitigation Measures would be used in conjunction with any project specific permit conditions imposed by Spokane County and the guidelines included within implementation documents required by State Parks (e.g., Vegetation Maintenance Plan, Trail Clearing Prescriptions Plan) for vegetation management during project implementation.

3.3.2 Affected Environment

The Study Area extends from an elevation of approximately 5,850 feet at the summit of Mount Spokane to an elevation of approximately 4,420 feet where the proposed bottom terminal of the chairlift would be located (see Figure EIS-2).

Forest, shrub, herbaceous, and talus communities are present throughout the Study Area. Snowmelt varies by topography and cover type, providing a range of seasonal habitats across the landscape. Additionally, woodlands within the central and southern portions of the Study Area have been extensively affected by wind and snow damage, often followed by bark beetle attacks, with some forest communities in this area currently supporting less than 60 live trees per acre (see Appendix B). An examination of historic aerial photographs indicates a forest stand mortality event occurred sometime between 1995 and 2005. Prior to this time, most of the expansion area was covered by dense coniferous forest except for the southern portion where alpine/subalpine meadows and shrublands occurred.

Environmental factors, in conjunction with human interventions, have given rise to the existing land cover in the Mount Spokane Study Area (see section 1.2 – Background). The area is characterized by a mosaic of vegetation communities and limited developed areas (e.g., roads, cell phone tower). Forests in this area typically have a thick undergrowth of woody shrubs and a build-up of small trees and woody debris. Appendix C includes an assessment of fire occurrence and history within Mount Spokane State Park. Since 1970, no forest fires appear to have occurred within the Study Area and relatively few fires have occurred within Mount Spokane State Park, when compared to adjacent private lands (see Appendix C, Figure 63). Descriptions of the vegetation communities within the Mount Spokane Study Area are presented in this section. Additional information regarding vegetation within the Mount Spokane Study Area can be found in Appendix B.

3.3.2.1 Existing Vegetation Communities

Field surveys identified 17 primary plant associations within the Study Area, including non-vegetative cover types, such as talus or developed areas. Plant associations are a key habitat attribute for many wildlife species and are used as a metric to discuss the dominant overstory and understory components of the Study Area (see Figure EIS-5). These associations are listed in Table EIS 3.3-2 along with their acreage of occurrence.

Table EIS 3.3-2:
Plant Associations Found in the Study Area

Common Name	Scientific Name	Map Code	Rank	Acreage
FOREST/WOODLAND				**262.4**
Subalpine fir/Lady fern	*Abies lasiocarpa/Athyrium filix-femina*	ABLA/ATFI	G2S2	2.1
Subalpine fir/Hitchcock's woodrush	*Abies lasiocarpa/Luzula glabrata ssp. hitchcockii*	ABLA/LUGLH	G5S2	2.4
Subalpine fir/Fools huckleberry	*Abies lasiocarpa/Menziesia ferruginea*	ABLA/MEFE	G5SNA	15.9
Subalpine fir/Carolina bugbane	*Abies lasiocarpa/Trautvetteria caroliniensis*	ABLA/TRCA	G3S3	<0.01
Subalpine fir/Thinleaf huckleberry	*Abies lasiocarpa/Vaccinium membranaceum*	ABLA/VAME	G5SNA	8.4
Subalpine fir/Bear-grass	*Abies lasiocarpa/Xerophyllum tenax*	ABLA/XETE	G5S3	200.4
Western hemlock/Lady fern	*Tsuga heterophylla/Athyrium filix-femina*	TSHE/ATFI	G2QS2Q	0.3
Western hemlock/Oak fern	*Tsuga heterophylla/Gymnocarpium dryopteris*	TSHE/GYDR	G3G4S3	10.0
Western hemlock/Fool's huckleberry	*Tsuga heterophylla/Menziesia ferruginea*	TSHE/MEFE	G2S2S3	15.7
Western hemlock/Bear-grass	*Tsuga heterophylla/Xerophyllum tenax*	TSHE/XETE	G2S2	7.3
SHRUB				**4.5**
Sitka alder/Mesic forb	*Alnus viridis* ssp. *sinuata/Mesic forb*	ALVIS/Mesic Forb	G3G4S3S4	1.2
Sitka alder/Triangle-leaf groundsel	*Alnus viridis* ssp. *sinuata/Senecio triangularis*	ALVIS/SETR	G3G4S3S4	3.3
HERBACEOUS/MEADOW				**8.2**
Sulfur-flower buckwheat–Green fescue	*Eriogonum umbellatum* var. *majus–Festuca viridula*	ERUMM–FEVI	GNRS3	4.4
Green fescue–Idaho fescue	*Festuca viridula–Festuca idahoensis*	FEVI–FEID	G2?SNR	3.4
Spreading phlox/green fescue–Hound's tongue hawkweed	*Phlox diffusa/Festuca viridula–Hieracium cynoglossoides*	PHDI3/FEVI–HICY	GNRS3	0.4
NON-VEGETATED				**3.6**
Talus	Talus	Talus		1.9
Developed	Developed	Developed		1.7
TOTAL				**278.8**

The NatureServe Network, which includes natural heritage programs and conservation data centers throughout North America, identifies global conservation ranks for species and ecosystems. NatureServe and its member programs use a suite of factors to assess the conservation status (elimination or extirpation risk) of species and ecosystems. Conservation status is summarized as a series of ranks from critically imperiled to secure. These ranks are widely used throughout the conservation community. While they do

not have any regulatory authority, they are used as a resource for government agencies responsible for administration of federal, state and provincial species conservation laws. Global and state ranks (or "G-Ranks," and "S-Ranks") are assigned on a scale of 1 through 5. A rank of G1 indicates critical imperilment on a global basis; the ecosystem is at great risk of extirpation. S1 indicates critical imperilment within a particular state (in this case, Washington), regardless of its status elsewhere. In contrast, a G5 rank indicates a species or ecosystem is secure on the global level, with very little risk of extinction (Master et al. 2012). A detailed description of these ranks is provided in Appendix G. The global and state ranks for the plant associations in the Study Area are also included in Table EIS 3.3-2.

Many of these plant associations are considered to be imperiled (approximately 16 percent of acreage) or vulnerable (approximately 57 percent), and several are considered uncommon or possibly unique, particularly those comprising herbaceous meadows and/or wetlands (see Appendix B). These include the following within the Study Area:

- Sitka alder-dominated wetlands (ALVIS/ATFI, ALVIS/Mesic Forb and ALVIS/SETR), and
- Dry open meadows (ERUMM-FEVI, FEVI-FEID, PHDI3/FEVI-HICY) near the summit of Mount Spokane State Park appear to be globally rare, but locally common with more habitat on the summit.

As illustrated in Table EIS 3.3-2, the majority of the Study Area is dominated by forest/woodlands, with most plant associations involving subalpine fir or western hemlock.

3.3.2.2 Forested Communities

Forested communities in the Study Area provide habitats for many wildlife species (e.g., marten, goshawk, numerous invertebrates), fungi, and other life forms. These forests support a mosaic of vegetation rich in structure, diversity, age (varying from young to mature) and biological and physical functions (e.g., nutrient cycling, symbiotic relationships, and hydrologic filtering). The largest trees in the Study Area occur in the lower elevation western hemlock and subalpine fir forests above the Chair 4 Road, while above approximately 5,100 feet, average tree diameters become progressively smaller as forested stands approach the summit of Mount Spokane (see Appendix B and Appendix E, section 6.2). As noted in Appendix E, these high elevation stands within the central and southern portions of the Study Area have been significantly affected by blowdown during windstorms and have extensive ice damage (natural disturbance events/processes that are typical atop isolated, high elevation mountain), with some stands having less than 60 live trees per acre and numerous snags (see Appendix B, Figure 16). Some of the vegetation polygons that were mapped consisted largely of blowdown logs, snags and a wide diversity of shrubs and herbaceous vegetation, along with small, young trees. Moving north and northwest through the Study Area, canopy closure increases, along with a concurrent decrease in understory vegetation. With few exceptions, the landscape of the Study Area is dominated by native vegetation and supports a diversity of native organisms and natural processes. Exceptions to this include developed areas near the summit of Mount Spokane and the presence of the Summit Road within the Study Area.

Old-growth forest conditions are found in the late stages of stand development and are distinguished by old trees and related structural attributes. Tree age, size, canopy layers, snags, and down trees are attributes that generally define old-growth. These attributes provide essential habitat for wildlife and other species that depend on old-growth or late-successional forests. Development of old-growth is a continuous and variable process that involves gradual changes in a variety of forest structures and functions. These elements may not change at the same rate or be present in the same place at the same time. Therefore, determining the start of the "old-growth stage" is rather arbitrary (Franklin et al. 2005, Hunter and White 1997).

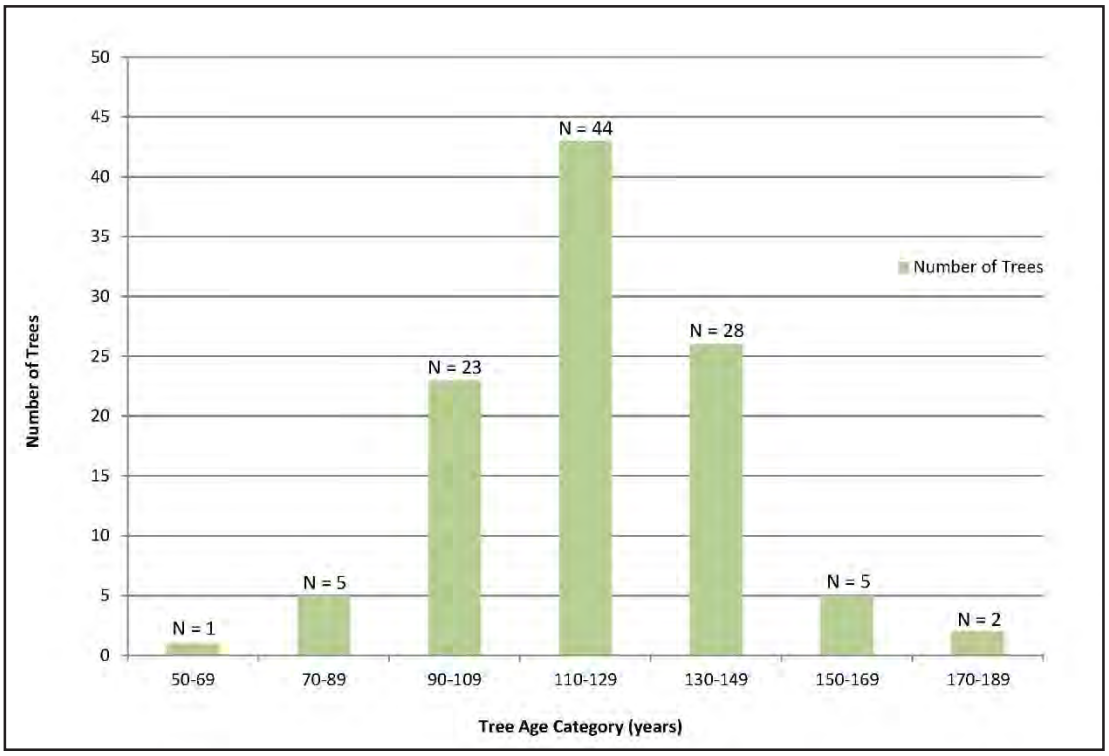
Although eastern and western Washington share many tree species, differences in fire frequency affect the development of older forests. On the coastal Olympic Peninsula, fires may not have occurred for several thousands of years, and western red cedar over 1,000 years old are not uncommon (Van Pelt 2007). In contrast, moist forests in the Selkirk Range, which includes the Study Area, experience more frequent high severity fires, with a fire return frequency estimated between 150 and 250 years (Franklin et al. 2008). Trees older than 200 years are relatively rare, and high intensity wildfires may prevent progression to older forest conditions (Franklin et al. 2008). In the Study Area, where frequent and intense natural disturbance events involving high winds and low temperatures, punctuated by infrequent but potentially catastrophic wildfire and insect infestation events occur, the likelihood of encountering classic "old growth forest conditions" are considerably lower than those encountered in other environments.

Vegetation survey work conducted by Morrison et al. (2010) and ICF International (2013) on the north-west face of Mount Spokane (see Appendices B and E) evaluated some of the attributes of the forest associations (e.g., canopy layers, snags, basal area, diameter, coarse woody debris, tree age) within and in adjacent areas around the expansion area. Morrison et al. (2010) found that nearly all the forest stands within that study's expanded 450-acre survey area had some large and small snags of various decay classes and densities, as well as abundant coarse woody debris and multiple canopy layers. Some stands exhibit vertical and horizontal diversification of the forest canopy, which are considered stages of old-growth (Van Pelt 2008). However, trees greater than 150 years old within the expansion area were relatively uncommon (see EIS Illustration 3.3-1 and Appendix E), owing to the high frequency and intensity of disturbance events.

While forests in the Study Area may not meet certain definitions of old-growth, which emphasize tree age and size, the majority of the area (and adjoining unclassified lands) supports natural processes and some of the stands contain older forest attributes (snags, coarse woody debris, multiple canopy layers) that provide habitat for a variety of wildlife species (see Table EIS 3.4-2). For species dependent on mature forest (e.g., northern goshawk), this habitat was identified to be more extensive in the northern and northwestern portion of the Study Area. Additional mature forest occurs within the greater PASEA, north and northwest of the Study Area (see Table EIS 3.4-2 and Appendix E, section 6.0 – HMP Field Studies).

During the summer and fall of 2013, 108 trees were cored intending to provide a general idea of the age of the forests within the Study Area, which would be impacted by the action alternatives. Trees ranging in size from stand average to stand dominant were selected from mature forest stands where clearing for ski development (e.g., clearing, grading) would occur under the action alternatives. Eleven sites were chosen for coring, distributed across upper elevation, mid elevation and lower elevation zones of the expansion area (see Appendix E, Figure 10). These sites were judged to be representative of mature forest conditions throughout the 279-acre Study Area. Areas documented by Morrison et al. (2010) to contain the largest diameter trees in the expansion area were included in the sample sites. The results of this field work are presented in Appendix E, Table 5 and Illustration EIS 3.3-1.

Illustration EIS 3.3-1:
Age Distribution of Cored Trees within the
Mount Spokane Ski and Snowboard Park Expansion Area



The coring work found:

- Trees cored from the expansion area ranged in age from 62 to 175 years (see Appendix E, Figure 11, Illustration EIS 3.3-1).[11]
- The majority of trees cored (88 percent) fell within the age range of 90 to 149 years, with the peak range being between 110 and 129 years (40.7 percent).
- Only 7 trees out of the 108 sampled (6.5 percent) were estimated to be 150 years of age or older.
- Trees cored in the northeast portion of the expansion area had the oldest mean age at 145.2 years, and included four trees older than 150 years.
- Trees cored in the southeast portion of the expansion area had the youngest mean age at 100.3 years.
- Trees at higher elevations were generally smaller (i.e., diameter breast height [dbh]) for a given age than trees at lower elevations, likely reflecting slower growth rates due to more extreme environmental conditions.

See Appendix E, section 6.2 – Tree Coring for more detail on the survey methods used, findings and a regulatory analysis related to this study.

3.3.2.3 Plants of Conservation Concern

A survey to locate plants of conservation concern was conducted in the Mount Spokane Study area during the 2010 field season (Appendix B). Survey methods were based on the USDA rare plant survey handbook (Range Management Staff 2008). The purpose of the survey was to locate any rare vascular plants occurring within the Study Area. Rare plants (species of conservation concern) include federally Endangered or Threatened species or Washington State sensitive, threatened or endangered vascular plant species tracked by the Washington Natural Heritage Program (WNHP).

No vascular plant species of conservation concern were observed during the 2010 rare plant surveys. No state or federally listed vascular plant species are known to occur within the Mount Spokane Study Area. No studies have been performed to determine the presence and extent of non-vascular plant species (e.g., mosses) in the Study Area.

3.3.2.4 Noxious Weeds and Non-Native Species

Noxious weeds are non-native, invasive plants that, when established, are highly destructive, competitive, or difficult to control by cultural or chemical practices. Washington Weed Law (Chapter 17.10 RCW) requires that noxious weeds be controlled to limit adverse effects on agricultural, natural, and human

[11] Trees aged through core sampling have the potential to underestimate age. This study assumed the trees took five years to reach breast height. Due to environmental conditions (e.g., harsh climate) trees may take longer than five years to reach that height when establishing.

resources of the State. The Washington State Noxious Weed Control Board updates its list of noxious weeds annually and categorizes the species into three classes (e.g., Class A, B, and C).

During field surveys (i.e., *Biological Surveys Conducted in the SEIS Analysis Area at Mount Spokane State Park During 2010*) no noxious weeds were observed growing in the Study Area. Scattered individuals of common tansy (*Tanacetum vulgare*) were observed occurring along roadsides outside of the Study Area. Control of common tansy is not required in Spokane County. Additionally, Parks staff has indicated that orange hawkweed (*Hieracium aurantiacum*) has been observed occurring along the Chair 4 Road at the northern edge of the Study Area. Orange hawkweed is a Class B weed. Control of Class B weeds is decided at the local level and containment is the primary goal. Spokane County mandates control of orange hawkweed.

Within the developed ski area boundary, volunteer surveys conducted during 2009 identified the presence of Saint Johnswort (*Hypericum perforatum*), common tansy, spotted knapweed (*Centaurea stoebe*), Dalmatian toadflax (*Linaria dalmatica* ssp. *dalmatica*), and Canada thistle (*Cirsium arvense*). Beginning in 2010, Mount Spokane Ski and Snowboard Park began implementing a noxious weed management program. This program is ongoing and is anticipated to reduce noxious weeds along within the existing developed ski area boundaries.

3.3.3 Environmental Consequences

Construction and/or operation of facilities associated with the Mount Spokane proposal have the potential to impact the composition, structure, and function of vegetation communities in the Mount Spokane Study Area. Impacts may be short-term or long-term in duration. In addition, these impacts may be further classified as direct or indirect. Many impacts will be poorly known or understood.

Long-term impacts result from the conversion or degradation of existing vegetation community to another community type, such as forest removal to be maintained as ski trails or chairlift terminals. Long-term impact activities include clearing and clearing with grading for the construction of ski trails resulting in a loss of natural vegetation and habitats that will not revert to a pre-development condition in a two- to three-year period (i.e., the removal of forested communities, construction of impervious surfaces, etc.). Additional long-term impacts would include fragmentation and introduction of exotic species. These impacts can extend well into the surrounding vegetation communities, causing near- and long-term changes in their composition (see section 3.4 – Wildlife).

Activities that result in a short-term disturbance to vegetation communities include the installation of buried utility lines and grading in vegetation communities for the construction of ski trails and related ski area infrastructure. Short-term impacts may persist for several years (two to three years) as shrub and herbaceous vegetation reestablishes to near pre-disturbance conditions. Impacts to vegetation from normal ski area operations and maintenance could occur, including preventing the production of seed through ongoing vegetation management with the potential to reduce the availability of food sources for animals

or through the introduction of non-native species. Operational impacts, such as skiing and grooming, have the potential to impact vegetation through incidental contact damage. Typically, damage from skiers is minor and usually occurs to shrub and herbaceous vegetation protruding from the snowpack. Damage from grooming equipment can be more severe, such as, scarring of tree boles adjacent to ski trails. Grooming equipment may not impact shrub or herbaceous vegetation within the ski trail because the snowpack evenly distributes the weight of the equipment over the terrain. However, grooming equipment may compact snow, which lengthens its presence on the site. Extending the period of snow cover has the potential to reduce the growing/reproductive period for some species.

Direct impacts typically have immediate effects in the area of activity and include all of the activities listed above. Direct impacts to vegetation are classified as those impacts that would modify the condition of a vegetated site (i.e., from forest to herbaceous). These impacts would include permanent loss of vegetation, conversion of vegetation communities to another vegetation type, or a short-term loss of vegetation during a temporary construction impact. These impacts relate to the impact analysis for other resource areas. For example, loss or conversion of vegetation communities would directly affect wildlife habitat in the Study Area (section 3.4 – Wildlife refers to impacts displayed in this section to assist in the analysis of impacts to wildlife). Similarly, the loss or conversion of vegetation communities along riparian corridors directly affects the analysis of impacts in section 3.2 – Watershed Resources, where riparian functions are discussed and in section 3.5 – Visual Resources, where the effect of forest removal is discussed in the context of visual effects.

Indirect impacts have delayed or unforeseen effects that occur in the future or in a different location than the original action. Many indirect impacts are also poorly understood given our knowledge and abilities to assess the impact of any project on the surrounding environment. For example, changes to the composition of an herbaceous community as a result of surrounding canopy removal would be considered an indirect impact on that community. Indirect impacts to vegetation would also include future maintenance operations (i.e., mowing/brushing ski trails), areas of soil disturbance that provide opportunity for noxious weed establishment, compaction of soils that limit establishment or health of plants growing in the soil, and utility trenching in existing herbaceous communities. These impacts relate to the impact analysis for other resource areas (e.g., soils) and may be poorly understood given our current knowledge and abilities to assess impacts for any project.

3.3.3.1 Alternative 1

Under Alternative 1, there would be no impacts to the existing vegetation communities within the expansion area, as no new development would occur. Alternative 1 would not result in any direct or impacts to vegetation, although indirect effects from unregulated, off-trail snowmobile access could occur due to the lack of formal trail systems. Areas within the Study Area that are currently relatively free of human visitors would continue to be seldom visited.

3.3.3.2 Alternative 2

Vegetation Communities

Under Alternative 2, there would be approximately 76.1 acres of direct impacts to vegetation communities resulting from tree removal for the construction of the proposed chairlift and seven ski trails (see Figure EIS-6). For purposes of this vegetation analysis, clearing and grading are considered the same in their impact. Essentially all of the tree removal would be for the construction of the chairlift and ski trails. At upper elevations in the expansion area, the natural characteristic of the terrain is open glades with scattered tree islands or dead standing trees. Where feasible, the proposed ski trails utilize the existing forest openings, which minimize the need for forest clearing to create a skiable trail. Table EIS 3.3-3 presents the results of a GIS analysis regarding impacts by vegetation community for each Action Alternative.

Table EIS 3.3-3:
Potential Impacts to Vegetation Communities within the Mount Spokane Study Area

Scientific Abbreviation	Common Name	Alt. 2 (acres)	Alt. 3 (acres)
ABLA/ATFI	Subalpine fir/Ladyfern	0.04	0.02
ABLA/LUGLH	Subalpine fir/Hitchcock's smooth woodrush	0.0	0.9
ABLA/MEFE	Subalpine fir/purple oniongrass	6.3	6.1
ABLA/TRCA	Subalpine fir/Carolina bugbane	0.0	0.0
ABLA/VAME	Subalpine fir/thinleaf huckleberry	0.3	0.3
ABLA/XETE	Subalpine fir/common beargrass	53.2	54.0
ALVIS/Mesic Forb	Sitka alder/Mesic Forb	0.2	0.1
ALVIS/SETR	Sitka alder/Arrowleaf Groundsel	2.2	0.0
Developed	**Developed**	0.3	0.3
ERUMM-FEVI	Sulphur-flower buckwheat-greenleaf fescue	0.3	0.05
FEVI-FEID	Greenleaf fescue-Idaho fescue	0.9	0.6
TSHE/GYDR	Western hemlock/western oakfern	1.4	1.4
TSHE/MEFE	Western hemlock/rusty menziesia	7.0	6.7
TSHE/XETE	Western hemlock/common beargrass	4.0	4.0
TOTAL		**76.1**	**74.5**

Note: Totals may vary due to rounding (ICF 2013)

The proposed clearing and grading impacts would primarily occur within the subalpine fir community. However, at lower elevations near the proposed bottom terminal of the new chairlift, the impacts would occur in the western hemlock forest type. Following construction activities, Mount Spokane would immediately reseed herbaceous and shrub vegetation cover in cleared ski trails, which would be managed for the life of the ski area (see Table EIS 2-4). Long-term impacts would persist in these modified vegetation communities as long as the area is maintained as a developed ski area. No clearing or grading is proposed within areas defined as talus (see Table EIS 3.3-3); therefore, no direct impacts through clearings and/or to talus areas are anticipated.

Indirect impacts under Alternative 2 to vegetation communities could occur from future maintenance of ski trails and chairlift terminals, similar to methodologies currently used by MS 2000. These impacts would include, but are not limited to, periodic mowing/brushing to maintain ski trails in a modified condition suitable for skiing or hazard tree removal. Mowing/brushing would prevent future forest regeneration by not allowing saplings to establish during the life of the ski area. It would also slow shrub development with potential impacts on fruit production and habitat quality. A second potential indirect impact would be the establishment of noxious weeds. Additional information regarding noxious weeds can be found under the *Noxious Weeds* discussion in this section.

Forested Communities

Under Alternative 2, there would be approximately 72.2 acres of direct impacts to forested stands (excluding developed areas, meadows and alder dominated areas). Additional impacts would include forest fragmentation, changes in microclimate, and potential introduction of exotic species. These impacts can extend well into the surrounding forest, causing near- and long-term changes in composition and function.

Rare Plants

There would be no impact to vascular plants of conservation concern under Alternative 2, as none are known to exist in the Study Area (see Appendix B).

Noxious Weeds

Under both action alternatives, there is a potential for the spread of noxious weeds within proposed disturbed areas (i.e., new trail and chairlift clearings).

The initial and ongoing disturbance and human presence required to implement and maintain the proposed ski area expansion has the ability to introduce noxious weeds and other exotic species into the Study Area. These species have the highest probability of establishing around the areas where intense soil disturbance, such as grading or digging will occur (Siegel and Donaldson 2010). These areas include the chairlift terminals, chairlift tower locations, and constructed ski trails. Possible construction-related vectors for introduction of weed, seed or propagative material into the Study Area includes any required heavy machinery, work crews, and project access vehicles.

3.3.3.3 Alternative 3

Vegetation Communities

Direct impacts to vegetation communities under Alternative 3 would be essentially the same as Alternative 2. Under Alternative 3, there would be approximately 74.5 acres of direct impacts to vegetation communities resulting from tree removal for the construction of the proposed chairlift and seven ski trails. This equates to approximately 1.6 acres less vegetation alteration when compared to Alternative 2 (see Figure EIS-7).

Forested Communities

Under Alternative 3, there would be approximately 73.4 acres of direct impacts to forested stands. Alternative 3 realigns Trail 1 to avoid direct impacts to a wetland located to the southeast portion of the Study Area, resulting in the elimination of impacts in the Sitka alder/Arrowleaf Groundsel vegetation community. Additional impacts would include forest fragmentation, changes in microclimate, and potential introduction of exotic species. These impacts can extend well into the surrounding forest, causing near- and long-term changes in composition and function.

Rare Plants

Effects to Rare Plants would be as described under Alternative 2.

Noxious Weeds

Effects to Noxious Weeds would be as described under Alternative 2.

3.3.4 Mitigation Measures

Potential direct and indirect effects of the action alternatives would be decreased through implementation of the BMPs and Mitigation Measures described in Table EIS 2-4 and through project specific operational plans (e.g., vegetation management plan, SWPPP).

3.3.5 Cumulative Effects

Cumulative impacts are the effects that may result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Generally, an impact can be considered cumulative if: a) effects of several actions occur in the same locale; b) effects on a particular resource are similar in nature; and c) effects are long-term in nature. Potential areas where cumulative impacts might occur to vegetation resources as a result of the construction and operation of new ski area facilities are discussed below.

Ecological systems are complex; therefore, only a basic understanding exists of what the potential cumulative effects to the vegetation in the Study Area will be should Alternative 2 or 3 be implemented. That said, within the 279-acre Study Area, the implementation of either of the action alternatives described in Chapter 2 would contribute to a long-term loss of vegetation, and the likelihood that the residual vegetation composition, structure, and function will be altered. Approximately 75.8 acres of vegetation at the site scale (see Table EIS 3.3-3) would directly experience the cumulative loss of vegetation with the implementation of Alternative 2. Similarly, approximately 74.2 acres of vegetation would directly experience a cumulative loss under Alternative 3. Neither of the action alternatives nor the other cumulative effects projects (i.e., the 2010 Master Facility Plan) are expected to eliminate plant communities at the site scale. However, some communities would be greatly reduced in size and function in the near-term and be subject to longer-term impacts associated with vegetation community changes and ski area maintenance practices. Over the long-term, some communities may be at risk of a continued

degradation within the Study Area. Implementation of either of the Action Alternatives would contribute to a cumulative loss of vegetation at the watershed scale.

Potential cumulative impacts to vegetation include alterations in snowpack and snowmelt due to a change in vegetation communities present in developed ski terrain, with corresponding alterations on the vegetation growing season due to increased sunlight and longer snow retention.

3.4 WILDLIFE

3.4.1 Introduction

This section describes the existing wildlife and wildlife habitat as well as the expected short-term and long-term impacts of the project alternatives within the Mount Spokane Study Area. Documents frequently used as references during this analysis include: *Habitat Elements and Life Stage Matrix for Wildlife Species of Interest in Mount Spokane State Park* (Romain-Bondi et al. 2009), *Biological Surveys Conducted in the SEIS Analysis Area at Mt. Spokane State Park During 2010* (Appendix B), *Recreational and Trail Impacts on Wildlife Species of Interest in Mount Spokane State Park* (see Section II, Appendix 3) and *Draft Habitat Management Plan Mount Spokane Ski and Snowboard Park Proposed Expansion Area* (Appendix E), among others. Many of the references included in section 3.4 are cited in Appendix E, section 9.0 – References. The emphasis of this chapter will pertain to the identified twenty-one focal wildlife species further described below.

For purposes of this analysis, the Study Area is defined as the 279-acre expansion area. The adjoining areas are described for the more regional setting, to place the Mount Spokane Study Area in context with the surrounding conditions, and to adequately describe wide-ranging species such as elk, deer, moose, and black bear. Information on wildlife was derived from background literature, color aerial photographs, and discussions with state resource agencies including the Washington State Department of Fish and Wildlife (WDFW). Additionally, biologists performed field surveys over several years to document the occurrence of special status wildlife species (e.g., northern goshawk) or their habitats, including state or federally listed species.

Mount Spokane State Park is home to a diversity of wildlife species. Cougar, coyote, deer, moose, elk, black bear, western toads, small mammals, bats, butterflies, and a diversity of bird species are all occupants of Mount Spokane State Park and seen by visitors and park staff. Birds of Mount Spokane State Park compiled by Ron Dexter in 2003 identified 110 species within the Park (http://www.mountspokane.org/images/MtSpBirds.jpg). Seventy-eight of these species were confirmed as breeders within the Park, with an additional 17 species listed as possible breeders. This section describes the affected environment and environmental consequences relative to wildlife resources associated with the proposed project within the Study Area.

This section focuses on wildlife habitat associations, the likelihood that specific wildlife species occur within the Mount Spokane Study Area, and specific habitat types that are used by these wildlife species.

In addition, a discussion of habitat connectivity within the context of the Mount Spokane Study Area is also presented. Vegetation communities, described in detail in section 3.3 – Vegetation, are the basis for the descriptions of wildlife habitat in this section.

The Environmental Consequences portion of this wildlife section contains analysis of the potential impacts to wildlife species that may occur within the Mount Spokane Study Area. In brief, short-term adverse effects to wildlife resulting from construction activities, such as avoidance of the Mount Spokane Study Area, were identified for most species as construction equipment introduces noise and activity into their habitat resulting in short-term displacement of these species.

The 279-acre Mount Spokane Study Area is comprised of a mosaic of wildlife habitats. Elevations within the Study Area range from approximately 4,420 feet to approximately 5,850 feet. Existing wildlife habitat conditions within the Mount Spokane Study Area have been influenced by past natural and human-caused modifications, including timber harvest, wildfires, road construction, ski area development, and other recreational activities (e.g., horseback riding, snowmobiling).

3.4.2 Affected Environment

In consultation with WDFW, State Parks prioritized twenty-one focal wildlife species, which potentially occur at Mount Spokane State Park (Ferguson 2007; Table EIS 3.4-1). These include game and non-game species, state and federal listed species, and state priority species from a wide range of taxa. These species may use a variety of habitats including mature/old-growth forests, talus slopes, recent burns, meadows, and alpine/subalpine, riparian and aquatic habitats, as well as others. A detailed description of each of the twenty-one focal species, their potential distribution in Mount Spokane State Park, and important habitat elements and their associated life-stage relationship for each focal species can be reviewed in *Habitat Elements and Life Stage Matrix for Wildlife Species of Interest in Mount Spokane State Park* (Romain-Bondi et al. 2009). Additionally, the 2010 Master Facilities Plan FEIS considered potential impacts due to recreational activities to the twenty-one focal species in Section II, Appendix 3 – *Recreational and Trail Impacts on Wildlife Species of Interest in Mount Spokane State Park*.

Key habitat attributes for each of the twenty-one focal species are described in this section, based upon extensive literature review and interviews with local wildlife experts. Selected habitat elements for each species, refined using additional literature searches as needed, were cross referenced with habitat data collected by Morrison and Wooten (2010) from within the potential expansion area to model and estimate the extent of suitable habitat present for each species. The results of this analysis follow.

Table EIS 3.4-1:
Conservation Status of the Twenty-one Focal Species Identified for Mount Spokane State Park

Species	Scientific Name	WDFW Status	Federal Status
CARNIVORES			
1 Gray wolf	*Canis lupus*	State Endangered; Priority Species	None
2 Canada lynx	*Lynx canadensis*	State Threatened; Priority Species	Federal Threatened
3 Wolverine	*Gulo gulo*	State Candidate; Priority Species	Federal Candidate Species
4 American marten	*Martes americana*	Game Species – Furbearer; Priority Species	None
UNGULATES			
5 Rocky Mountain elk	*Cervus elaphus*	Game Species; Priority Species	None
6 White-tailed deer	*Odocoileus virginianus ochrourus*	Game Species; Priority Species	None
7 Moose	*Alces alces*	Game Species; Priority Species	None
BIRDS			
8 Northern goshawk	*Accipiter gentilis*	State Candidate; Priority Species	Federal Species of Concern
9 Boreal owl	*Aegolius funereus richardoni*	State Monitor	None
10 Pileated woodpecker	*Dryocopus pileatus*	State Candidate; Priority Species	None
11 Black-backed woodpecker	*Picoides arcticus*	State Candidate; Priority Species	None
12 Dusky grouse	*Dendragapus obscurus pallidus*	Game Species; Priority Species	None
13 Brown creeper	*Certhia americana*	None	None
14 Pacific (winter) wren	*Troglodytes troglodytes*	None	None
15 Olive-sided flycatcher	*Contopus cooperi*	None	None
SMALL MAMMALS			
16 Pika	*Ochotona princeps*	None	None
17 Pygmy shrew	*Sorex hoyi*	State Monitor	None
18 Silver-haired bat	*Lasionycteris noctivagans*	None	None
19 Hoary bat	*Lasiurus cinereus*	None	None
OTHER SPECIES			
20 Western toad	*Bufo boreas*	State Candidate; Priority Species	Federal Species of Concern
21 Compton tortoiseshell butterfly	*Nymphalis vaualbum*	State Monitor	None

Sources: USFWS 2013; WDFW 2008; WDFW 2013a

The habitat requirements, ecology, potential to occur within the Mount Spokane Study Area, and nature of occurrence for the twenty-one focal wildlife species listed above, is further described below in Table EIS 3.4-2. This table also provides estimates of suitable habitat available in the expansion area for these species.

Where existing quantitative habitat models were available for a species, a habitat suitability index (HSI) value of 0.5 (i.e., the transition between low and moderate habitat suitability) was chosen as the threshold used to screen habitat element variables for species suitability. HSI values fall within a range of 0 (no habitat value for a species) to 1 (optimal habitat value for a species). Habitat elements with an HIS value of 0.5 or higher were assumed to provide adequate suitability for species use. When quantitative models were lacking, word models provided by Romain-Bondi et al. (2009) were used to evaluate habitat elements for suitability. Additional information on many of these species is also available from WDFW in their series, Management Recommendations for Washington's Priority Species (Rodrick and Milner 1991, Larsen 1997, and Larsen et al. 2004), which summarizes habitat requirements, limiting factors and management recommendations for priority species. Maps depicting the distribution of modeled suitable habitat for each species in the expansion area are provided in Appendix E.

Table EIS 3.4-2:
Suitable Habitat Estimates for the Twenty-one Focal Species in the 279-acre Expansion Area

Species	Habitat Associations	Potential Species Presence	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions
Canada lynx (*Lynx canadensis*)	Northern boreal forests and closed canopy montane forests. Requires early-successional forest for primary prey (snowshoe hare) and late-successional forest for denning (Rodrick and Milner 1991, Ruediger et al. 2000). Forest types considered to be primary habitat are lodgepole pine and subalpine fir.	Multiple sightings documented for Mount Spokane State Park between 1988 and 2002; but none in the expansion area. Forest conditions within the park provide adequate habitat for denning, foraging and dispersal. However, no evidence of denning has been documented (Romain-Bondi et al. 2009).	Breeding/denning: Forest stands with tree canopy closure ≥40% and coarse woody debris ≥15%. Summer foraging: Forest and shrub stands with shrub cover >10%. Winter foraging: Forest stands with ≤ 30% slope and shrub cover ≥20%. Dispersal: All forest and shrub stands, plus any herbaceous/nonvegetated cover types < 300' from forest or shrub stands. Source: Romain-Bondi et al. 2009; Morrison et al. 2007	0 260 83 275
Gray wolf (*Canis lupis*)	Vast areas of remote, undisturbed habitat; isolation from human disturbance for denning (Paradiso and Nowak 1982).	Development, such as highways, trails, campgrounds and the ski area, have reduced the extent of undisturbed habitat in Mount Spokane State Park. Gray wolves may occur as lone individuals that use the park for dispersal and foraging habitat. No verified sightings have been documented. Gray wolves are not currently known to use the park for breeding, denning or pack establishment (Romain-Bondi et al. 2009).	Summer foraging: Deer, elk and moose habitat >0.25 mile from the Summit Road and Kit Carson Trail. Winter foraging: Deer, elk and moose habitat < 3500' in elevation. Source: Romain-Bondi et al. 2009	138 0
Wolverine (*Gulo gulo*)	High elevation alpine tundra, subalpine forest, and montane forest (Banci 1994; Copeland et al. 2007).	Multiple sightings documented for Mount Spokane State Park. Foraging and dispersal habitat is present within the park, but conditions are unsuitable for denning (Romain-Bondi et al. 2009).	Summer foraging: Any habitats >5000' in elevation. Winter foraging: Any habitats >3500' in elevation. Source: Romain-Bondi et al. 2009	191 279

Table EIS 3.4-2:
Suitable Habitat Estimates for the Twenty-one Focal Species in the 279-acre Expansion Area

Species	Habitat Associations	Potential Species Presence	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions
American marten (*Martes americana*)	Boreal coniferous forests, as well as mixed coniferous and deciduous habitats (Rodrick and Milner 1991, Thompson and Harestad 1994). Strongly associated with older forests and coarse woody debris	A regular occupant of Mount Spokane State Park. Existing forest structures likely provides denning, foraging and security habitat (Romain-Bondi et al. 2009).	Non-winter cover and foraging: All habitats except developed. Winter cover and foraging: Forest stands with tree canopy cover >37% and either a) 8 largest trees/ac >19 in dbh; b) more than 4 snags/ac with a quadratic mean diameter >12 in; or c) coarse woody debris between 20% and 50%. Non-forest areas <165' from suitable forest stands. Source: Romain-Bondi et al. 2009; Allen 1982; Morrison et al. 2007	277 140
Rocky Mountain elk (*Cervus elaphus*)	Coniferous forests associated with mountains, foothills, or canyon rangelands (Rodrick and Milner 1991, Skovlin et al. 2002). Prefer a mosaic of forested and open habitat patches to meet cover and foraging needs.	Year-round, regular concentrations in Mount Spokane State Park. Suitable habitats for breeding, calving, and foraging are known to be present (Romain-Bondi et al. 2009). Use of the expansion area during the winter months is limited due to high snow depths and a general lack of available forage.	Cover: Forest stands >0.25 mile from Summit Road and tree canopy cover >50%. Summer/fall foraging: Any habitat [<5000' in elevation, <60% slope or >200' from the Summit Road] with tree canopy cover < 40% and within 900' of elk cover. Winter foraging: Habitats <3500' in elevation. Source: Romain-Bondi et al. 2009	74 2.2 0

Table EIS 3.4-2:
Suitable Habitat Estimates for the Twenty-one Focal Species in the 279-acre Expansion Area

Species	Habitat Associations	Potential Species Presence	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions
White-tailed deer (*Odocoileus virginianus ochrourus*)	Forested and open habitats, feeding on grasses, forbs, and shrubby browse (Rodrick and Milner 1991, NatureServe 2013).	Year-round, regular concentrations in Mount Spokane State Park. Suitable habitats for breeding, fawning and foraging are known to be present (Romain-Bondi et al. 2009). Use of the expansion area during the winter months is limited due to high snow depths and a general lack of available forage. Documented within the expansion area (see Figure 6, section 6.0).	Summer/fall foraging: Any habitat with herbaceous cover >15% or shrub cover >22%. Summer/fall cover: Forest stands with canopy cover >50%, or Any habitat with shrub/sapling tree cover >52%. Winter foraging/cover: Habitats <3000’ in elevation. Source: Romain-Bondi et al. 2009; Kieffer et al. 1999	276 172 0
Moose (*Alces alces*)	Boreal forest and wetland habitats (Rodrick and Milner 1991).	Year-round occupant of Mount Spokane State Park, with forests and wetlands providing breeding, calving and foraging habitat. Use of the expansion area during the winter months is limited due to high snow depths and a general lack of available forage.	Breeding/calving: Forest and shrub stands with gentle slopes (0–10%) and southerly exposures Summer/fall foraging: Forest and shrub stands with slopes <50% and shrub cover between 5% and 95%. Summer cover: Forest stands with canopy cover >70% and canopy height > 33’ Winter foraging/cover: Snow depths <35 in. Source: Romain-Bondi et al. 2009	0 274 42 0

Table EIS 3.4-2:
Suitable Habitat Estimates for the Twenty-one Focal Species in the 279-acre Expansion Area

Species	Habitat Associations	Potential Species Presence	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions
Northern goshawk (*Accipiter gentiles*)	Montane and boreal forests (Desimone and Hays 2003). Forages in the open understory of dense forests and within small forest openings. Nesting occurs in large intact blocks of mature and late successional conifer forest where prey densities are high.	Year-round residents of Mount Spokane State Park (Romain-Bondi et al. 2009). Several primary and alternate nest sites have been documented in the Park. No evidence of goshawk nesting was detected in the expansion area or an adjacent buffer by ICF in 2013 (see section 6.1).	Breeding/nesting: Forest stands with slopes <70%, tree canopy cover >40%, 8 largest trees/ac >19 in dbh, and avg tree height >65'. Foraging: Forest stands with slopes <70%, tree canopy cover >32%, and avg tree height >65', or Nonforest stands <4 acres interspersed with suitable forest. Source: Romain-Bondi et al. 2009; Morrison et al. 2007	44 93
Boreal owl (*Aegolius funereus richardsoni*)	High elevation mature and old growth coniferous forests.	Uncommon, year-round resident in the mountains of northeastern Washington (BirdWeb 2013). Potentially breeds and forages in Mount Spokane State Park.	Breeding/nesting: Forest stands >4000' in elevation with combined trees and snags/ac >23, and 8 largest trees/ac >14 in dbh. Foraging/roosting: Forest stands >3500' with tree canopy cover >35%. Source: Romain-Bondi et al. 2009; Heinrich et al. 1999	209 209

Table EIS 3.4-2:
Suitable Habitat Estimates for the Twenty-one Focal Species in the 279-acre Expansion Area

Species	Habitat Associations	Potential Species Presence	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions
Pileated woodpecker (*Dryocopus pileatus*)	Prefer tall, closed-canopy, coniferous forests containing large snags, large decaying live trees and abundant downed woody debris (Lewis and Azerrad 2003).	Utilizes large diameter trees and snags as preferred habitat for nesting and foraging (Romain-Bondi et al. 2009). Documented within Mount Spokane State Park and the expansion area (see Figure 6, section 6.0). No evidence of foraging by pileated woodpeckers was observed above 4,808' elevation in the expansion area.	Breeding/nesting: Forest stands with tree canopy cover >50%, and 8 largest trees/ac >20 in dbh. Foraging: Forest stands with tree canopy cover >50%, and quadratic mean diameter of snags >9.8 in or cover of coarse woody debris >10%. Roosting: Forest stands with tree canopy cover >50%, and 8 largest trees/ac >16 in dbh. Source: Romain-Bondi et al. 2009; Schroeder 1983; Lewis and Azerrad 2003	33 178 169
Black-backed woodpecker (*Picoides articus*)	Coniferous forests-habitat specialists associated with recent fires or large scale natural disturbances that create abundant standing snags dead for five years or less (Hutto 1995, Saab et al. 2002). Often associated with lodgepole pine forests (Altman 2000)	Potentially breeds and forages in Mount Spokane State Park (Romain-Bondi et al. 2009).	Breeding/nesting: Forest stands with quadratic mean diameter of snags >10 in, or # snags/ac >30. Foraging/roosting: Forest stands with # snags/ac >26. Source: Romain-Bondi et al. 2009	264 264

Table EIS 3.4-2:
Suitable Habitat Estimates for the Twenty-one Focal Species in the 279-acre Expansion Area

Species	Habitat Associations	Potential Species Presence	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions
Dusky grouse (*Dendragapus obscurus pallidus*)	Inter-mountain coniferous forests mixed with deciduous trees and shrubs, as well as sagebrush-grassland areas (Ware 1998). Prefer open brushy habitat during the spring and summer, and high elevation conifer forests in winter. Aspen stands provide important food and cover	Mount Spokane State Park provides potential breeding and foraging habitat (Romain-Bondi et al. 2009). Documented within the expansion area (see Figure 6, section 6.0).	Breeding/nesting: Any habitat with tree canopy cover between 10 and 65%, and shrub cover between 5% and 53% or herbaceous cover between 20% and 80%. Summer foraging: Any habitat with shrub cover between 5% and 53% or herbaceous cover between 20% and 80%. Winter foraging and roosting: Dense conifer forest (assume tree canopy cover >50%. Source: Romain-Bondi et al. 2009; Schroeder 1984.	196 276 155
Brown creeper (*Certhia americana*)	Prefer closed canopy forests with abundant large dead/dying trees for nesting and large live trees for foraging. Are significantly more common in old forests with multi-layered structure (Adams and Morrison 1993; Johnson and O'Neil 2001).	Mount Spokane State Park provides potential breeding and foraging habitat (Romain-Bondi et al. 2009). Documented within the expansion area (see Figure 6, section 6.0).	Breeding/nesting/foraging: Forest stands with [quadratic mean diameter of trees >7.5 in or quadratic mean diameter of snags >7.5 in], or 8 largest trees/ac >20 in dbh. Source: Romain-Bondi et al. 2009	264
Pacific (winter) wren (*Troglodytes troglodytes*)	Prefer dense tangles and thickets in coniferous and mixed forests. Coarse woody debris and shrub cover are key habitat elements associated with nesting and foraging. Breeding territories, nests, and foraging areas frequently are associated with streams, bogs, swamps and lakes (Romain-Bondi et al. 2009).	Mount Spokane State Park provides potential breeding and foraging habitat (Romain-Bondi et al. 2009). Documented within the expansion area (see Figure 6, section 6.0).	Breeding/nesting/summer foraging: Forest stands with tree canopy cover >35% and cover of coarse woody debris >7.5%, or Any habitat within 25' of a stream. Source: Romain-Bondi et al. 2009; Gould et al. 1999	187

Table EIS 3.4-2:
Suitable Habitat Estimates for the Twenty-one Focal Species in the 279-acre Expansion Area

Species	Habitat Associations	Potential Species Presence	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions
Olive-sided flycatcher (*Contopus cooperi*)	Highly associated with coniferous forest stands throughout North America (NatureServe 2013). Breeds in higher elevation forests and woodlands, especially burned areas with standing dead trees. Their primary needs including perching posts (snags and live trees), adjacent to open air foraging, and conifer forest edges for breeding (Altman and Sallabanks 2000).	Mount Spokane State Park provides potential breeding and foraging habitat (Romain-Bondi et al. 2009). Documented within the expansion area (see Figure 6, section 6.0).	Breeding/nesting: Forest stands with tree canopy cover <50%, and a tree density between 25 and 53 trees per acre or snag density between 6 and 17 trees per acre. Source: Romain-Bondi et al. 2009; Vesley et al. 2007	12
American pika (*Ochotona princes*)	Common resident of rock and talus slopes of mountainous regions. In Washington, occupy the talus-meadow interface within alpine and subalpine habitats.	Potential year-round inhabitant of alpine/subalpine talus on Mount Spokane. Documented within the expansion area (Morrison and Wooten 2010).	Breeding/nesting/foraging: Talus, and adjacent upland meadow within 5', that are above 5000' in elevation. Source: Romain-Bondi et al. 2009	2
American pygmy shrew (*Sorex hoyi*)	Distributed throughout the boreal regions of North America, within a wide variety of habitats. Potentially occupy all structural stages of upland conifer forests. Coarse woody debris and leaf litter/duff are important habitat elements (Romain-Bondi et al. 2009).	Mount Spokane State Park provides potential breeding and foraging habitat for the pygmy shrew (Romain-Bondi et al. 2009). Very little specific information exists for the species in the Pacific Northwest.	Breeding/parturition/foraging: All habitats except talus and developed. Source: Romain-Bondi et al. 2009	275
Silver-haired bat (*Lasionycteris noctivagans*)	Secondary cavity roosters, using cracks and fissures in tree bark, cavities in live and dead trees, and rock crevices for roosting and rearing young.	Summer resident known to forage and roost, and perhaps breeding, in and around Mount Spokane State Park (Romain-Bondi et al. 2009). Thought to migrate out of the Columbia Basin in September and return in July (a three-month residency) (Shump and Shump 1982).	Foraging/roosting/breeding: All habitats except developed. Source: Romain-Bondi et al. 2009	277

Table EIS 3.4-2:
Suitable Habitat Estimates for the Twenty-one Focal Species in the 279-acre Expansion Area

Species	Habitat Associations	Potential Species Presence	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions
Hoary bat (*Lasiurus cinereus*)	Foliage roosters (roosting on branches of trees) documented to use a variety of conifer and riparian habitats. Forage within meadows, forest edges, forest openings and roads (Romain-Bondi et al. 2009).	Summer resident known to forage and roost, but not breed, in and around Mount Spokane State Park (Romain-Bondi et al. 2009). Thought to migrate out of the Columbia Basin in September and return in July (a three-month residency) (Shump and Shump 1982).	Foraging/roosting: All habitats except developed. Source: Romain-Bondi et al. 2009	277
Western toad (*Bufo boreas*)	Breeds in shallow ponds and lake margins. Forages in a wide variety of upland habitats after breeding is complete. Winters in burrows or under logs and rocks.	A regular occupant of Mount Spokane State Park that hibernates for 3 to 6 months during winter (Wind and Dupuis 2002).	Breeding/metamorphosis: Warm, shallow water bodies. Foraging/migration: Stream corridors, and forest stands with <75% tree canopy cover, that lie within 3280’ of breeding ponds. Source: Romain-Bondi et al. 2009	0 0
Compton’s tortoiseshell butterfly (*Nymphalis vau-album*)	Prefers coniferous and deciduous forests. Lays its eggs on the leaves of birch, willow and poplar trees. Forages in open habitats such as meadows, forest openings and riparian areas.	Thought to occur within Mount Spokane State Park. One documented sighting fromMount Spokane near the expansion area.	Breeding/metamorphosis: Habitats containing willow, birch or aspen. Foraging: All habitats, except talus, with tree canopy closure <30%, or All habitats within 30 m of streams. Source: Romain-Bondi et al. 2009	0 109

Source: Mt Spokane SEIS (Washington State Parks and Recreation Commission 2012), Romain-Bondi et al. (2009), Rodrick and Milner 1991, and ICF field observations in 2013.

In addition to the twenty-one focal species, a variety of other terrestrial and aquatic species also occur in the area. WDFW databases indicate that six streams within or adjacent to the boundaries of Mount Spokane State Park have rainbow trout present. The habitat surveys used for the development of Appendix B were conducted over three field sessions from June 27 to August 30, 2010. Additionally, four field surveys were performed over the summer of 2013 during the development of Appendix E. At that time, no trout were observed within the Study Area; therefore, no trout species have been included in the list of focal wildlife species for this analysis.

In addition, researchers from the Conservation Biology Center in Spokane have performed independent surveys near the summit of Mount Spokane, identifying a population of flightless, ice crawlers (*Grylloblatta* spp.). This species of insect is found at high elevations in the Rocky Mountains (from WA, ID, MT, WY, BC and AB). Grylloblattids are a poorly known group of insects restricted to cold and extreme habitats. Little is known about their life history biology, and behavior. Grylloblattids are found only in Japan, Siberia, the northwestern United States, and western Canada. There are 26 species known worldwide; the 10 North American species are restricted to mountains in Montana, California, Oregon, Washington, and western Canada (http://www.entm.purdue.edu/ants/ice-crawlers.php). At this time this species is not a state or federally listed species of concern.

3.4.3 Environmental Consequences

The physical actions associated with the action alternatives would result in impacts to wildlife and/or wildlife habitat and are referred to as *impact mechanisms*. Impacts can be classified and discussed in many different ways. For the purposes of this Draft EIS, impacts to wildlife will be discussed in terms of direct versus indirect and short-term versus long-term as defined below. Activities leading to direct and indirect impacts to wildlife, wildlife habitat, and wildlife habitat connectivity include the following:

Direct Impacts

Implementation of the action alternatives would result in direct impacts, both long-term and short-term, to wildlife and wildlife habitat. These impacts include permanent and temporary habitat loss, conversion of habitat from one type to another, habitat fragmentation, and disturbance to wildlife. Direct impacts to wildlife or wildlife habitat could result from the following proposed actions:

- Chairlift terminal construction and tower placement
- Clearing with grading for chairlifts and ski trails
- Clearing without grading for chairlifts and ski trails
- Utility line installation
- Routine annual maintenance
- Increased human activity and presence

Indirect Impacts

Indirect impacts to wildlife and wildlife habitat potentially occurring as a result of implementation of the action alternatives include a potential decrease in large mature trees, a shift from late-successional to early-successional species, a decrease in the number of snags and dead or broken-topped trees, and a change in the species composition of native plant communities in the Mount Spokane Study Area due to potential introduction of non-native plant species. Project components potentially causing these types of impacts include:

- Clearing with grading for the chairlift and ski trails
- Clearing without grading for the chairlift and ski trails
- Utility line installation
- Routine annual maintenance
- Increased human activity and presence
- Edge effects/habitat fragmentation

Short and long-term impacts to wildlife and wildlife habitat include the following:

Short-term Impacts

Short-term, or construction, impacts include temporary habitat loss resulting from ground disturbing activities in areas, which would subsequently be allowed to revegetate. Short-term impacts would also include temporary noise disturbance from construction activities. All previously listed activities have the potential to cause temporary noise disturbance. Project components potentially resulting in short-term impacts to wildlife habitat include:

- Vegetation disturbance in buffer areas of chairlift construction
- Clearing with grading for the chairlift and ski trails within areas containing modified herbaceous habitat
- Clearing without grading for the chairlift and ski trails within areas containing modified herbaceous habitat
- Utility line installation

Long-term Impacts

Long-term impacts include: 1) the permanent loss or conversion of wildlife habitat and 2) fragmentation of wildlife habitat resulting in decreased connectivity and a decrease in travel habitat effectiveness. Long-term impacts on wildlife or wildlife habitat would result from the following proposed actions:

- Chairlift terminal construction and tower placement
- Clearing with grading for the chairlift and ski trails

- Clearing without grading for chairlift and ski trails
- Utility line installation
- Routine annual maintenance, such as vegetation mowing or brushing for chairlift and trail maintenance, and occasional felling of hazard trees
- Snow compaction from grooming
- Increased human activity and presence

Long-term impacts may also include habitat fragmentation (by vegetation removal) and noise disturbance due to the operation of the facilities and/or short-term impacts caused by the noise disturbance generated by the construction of the chairlifts and actual removal of vegetation. Loss of wildlife habitat, due to forest and vegetation removal, will likely cause: 1) breeding/rearing disturbance; 2) displacement/avoidance by wildlife; 3) snag/coarse woody debris reduction; and 4) habitat fragmentation/edge effects. These potential long-term impacts were summarized in the 2010 Master Facilities Plan FEIS and are further defined below:

Stress/physiological response – Studies of heart rates and fecal glucocorticoid levels have shown stress responses to human activity. Chronic stress can make species susceptible to illness and reduce individual fitness (Sapolsky 1992 *in* Creel et al. 2002).

Breeding/rearing disturbance – Species that are considered generally tolerant of human activity may experience higher levels of disturbance at breeding and rearing sites. This change may result in reduced attentiveness to young, disruption of feeding patterns, abandonment of nests/dens, and/or cause adults to undertake additional risks to their young by moving them to a new location.

Displacement/avoidance – A variety of species often move away from human activity or intentionally avoid associated sites. Sites may be avoided due to the disruption caused by human presence or habitat changes associated with the site (e.g., soil compaction, dryness of soils and vegetation along roadsides and trails). Animals displaced by recreation are less likely to survive and reproduce where habitat is unfamiliar or inferior (Gutzwiller 1995). Displacement or avoidance is by far the most common response of species found in the literature.

Habitat fragmentation/edge effects – Habitat fragmentation/edge effects are typically associated with timber harvest and/or roads, however, ski trails can have similar, though typically less intense impacts. Forest fragmentation effects on songbirds mainly include nest parasitism and presence of nest predators (such as brown-headed cowbirds) in the trail corridor and adjacent interior forest. It has been noted that predation of songbird nests was greater closer to forested hiking trails. Another study found bird composition and abundance of songbirds was altered adjacent to trails.

Predator/competitor increased accessibility – Ski trails can greatly ease travel and access for species less adapted for movement in deep snows. This change may cause greater rates of predation on some species and increased competition for prey for others.

Snag/coarse woody debris reduction – Snags and coarse woody debris are used for cover, nesting and denning, and are key habitat components for some species. These components may be lost through ski trail development, recreational site development and associated removal of hazard trees.

Habituation – Many species will become habituated to human presence. Habituation often poses risks to animals, resulting in undesirable behaviors, poor nutrition, incidental destruction of property, and a host of other factors.

Although recreation is widely recognized as an increasingly important factor affecting wildlife, these impacts have not been fully assessed. For many less studied species, information on recreational impacts is completely lacking. For others, sources consist primarily of anecdotal information in older natural history-oriented studies. Wide-ranging carnivores and ungulates have received the most detailed attention, along with very recent studies addressing recreational impacts on presence, diversity and density for general species groups or habitat types. Even for those species with the greatest information, however, data are often lacking on specific thresholds of disturbance (intensity of use, distance thresholds, temporal effects, etc.).

In addition to a lack of information on wildlife and human interactions, there is conflicting information for various species. Some species may be described in the literature as relatively tolerant of human disturbance in one study, but appear quite sensitive in others.

These gaps and limitations of the available scientific information on wildlife and recreational impacts are important to the understanding and interpretation of this analysis. Specifically, it is important to highlight that the many cases of no or limited information should not be confused with an implication of “no effect.” Where no data exist on some impact types, but an effect on a species seems likely given its biology, habitat use, and/or response of similar species, a discussion on potential effects is included by alternative.

Either of the Action Alternative (Alternatives 2 and 3) would have potential known impacts to wildlife resources, along with unknown impacts; select examples are noted below. Information on wildlife habitats in this section is based on the vegetation communities and forest stand information developed for the Mount Spokane Study Area as described in section 3.2 – Vegetation, Appendix B, Appendix C and Appendix E. Additionally, Tables 5 through 7 from Section II, Appendix 3 have been included in this analysis to provide a summary of potential impacts from recreational disturbance to the twenty-one focal species from the action alternatives (see Table EIS 3.4-3). Where more detailed information is available (e.g., Canada lynx) the discussion has been expanded to inform the analysis. Impacts to wildlife could vary, depending on the impact mechanism and alternative.

3.4.3.1 Alternative 1

Under Alternative 1, there would be no new direct or indirect impacts to the wildlife species within the expansion area as no new development or habitat disturbance would occur.

3.4.3.2 Alternative 2

State and Federal Listed Species

Of the Federal or State listed species, gray wolves and Canada lynx are not currently thought to be established as resident animals in Mount Spokane State Park. However, since both species have potential for resident animals or breeding populations in Mount Spokane State Park in the future, they are assumed to be present and are being evaluated in this document. Gray wolves are thought to occur as lone individuals in and around Mount Spokane State Park, but currently, they are not considered to be a resident pack in the park or the surrounding area (Ferguson 2008).

Canada lynx is also thought to use habitat in or adjacent to Mount Spokane State Park for some part of their life requisite. There have been multiple year-round lynx sightings and tracks in Mount Spokane State Park. Although there has been no evidence of denning, existing forest conditions in the park provide likely adequate habitat for denning, foraging, and dispersal (Romain-Bondi et al. 2009). Sighting information provided by WDFW Wildlife Biologist H. Ferguson (2008) is mainly associated with the western and northwestern edge of the Park (map provided in Romain-Bondi et al. 2009). On March 24, 2000, the contiguous United States population of the Canada lynx was listed as threatened under the Endangered Species Act (ESA) (USFWS 2000). The lynx was classified by WDFW as a threatened species in 1993 (WAC 232-12-011). Regulatory compliance is coordinated through USFWS and WDFW. However, no land within Spokane County has been designated as Canada lynx critical habitat. In addition, the Washington State Recovery Plan for the Lynx (Stinson, 2001) estimates that any potential lynx habitat on Mt. Spokane is very limited and isolated.

With the exception of impacts related to developed winter recreational facilities, the effects of recreational activities on lynx populations have not been well studied (Ruggiero et al. 1999). This is primarily due to the number of environmental analyses performed for new ski facilities on federal lands resulting in additional knowledge of the impacts of these facilities on lynx and lynx habitat.

Prediction of recreational effects is based largely on known lynx ecology, preliminary habitat use data from Colorado's reintroduction effort, ecological concepts, the cautious application of anecdotal accounts (e.g., Roe et al. 2000), and professional judgment. Recognizing the lack of data on lynx and recreational activities, Ruggiero et al. (1999) concluded "limited anecdotal observations do not support the hypotheses that snowmobiling, ski touring, or hiking (i.e., dispersed recreation) result in significant behavioral disturbances to lynx." However, this statement is unqualified with respect to the intensity of these activities.

With respect to developed recreation effects on lynx (relevant to the action alternatives), Ruediger et al. (2000) indicated "to date, most investigations of lynx have not shown human presence to influence how

lynx use the landscape. Intuitively we assume that some threshold exists where human disturbance becomes so intense that it precludes use of an area by lynx." "High intensity recreational use, such as that occurring at ski areas, may provide a level of disturbance that effectively precludes lynx use (at least temporarily) of otherwise suitable habitat (Ruggiero et al. 1999)." They go on to state that "lynx may be able to adapt to the presence of regular and concentrated recreational use, so long as critical habitat needs are being met." Such use by some lynx has been demonstrated at some ski areas and their surrounding areas (e.g., Beaver Creek Resort, Vail Resort, Vail Pass, Copper Mountain Resort, Keystone Resort, Arapahoe Basin, Wolf Creek Ski Area, Durango Mountain Resort, Telluride Ski Resort, and Canadian ski areas;Thompson and Halfpenny 1989, Thompson 2006). The natural activity patterns of lynx (largely nocturnal) versus recreational activities (largely diurnal) provide an opportunity to maintain both uses in the same landscape. A key to providing temporal segregation of use is ensuring that effective diurnal security habitats are present and adequately distributed (Ruggiero et al. 1999). While lynx and ski areas may not be incompatible, the developed ski terrain itself is a small part of their normally used areas. Larger surrounding tracts of undeveloped, effective forest facilitate lynx use of ski areas (Thompson and Halfpenny 1989).

Lynx diurnal security habitat (DSH) includes those areas that provide cover values that are also relatively isolated from, and unaffected by, human developments and activities. These are areas where largely nocturnal and crepuscular lynx can rest during the day without being regularly displaced or harassed by humans or exposed to other risk factors (Ruediger et al. 2000; Shenk 2005). Denning habitat is often used as a surrogate for security habitat, but security habitat is more widespread because it generally includes a greater variety of forest structural stages and aspects, and can include smaller habitat patch sizes and less isolation from risk factors. The structural cover component of security habitat is not as important as that associated with denning. It is likely that most forested habitats that provide adequate cover and diurnal seclusion from human activities, predators, and competitors support potential security habitat. Relatively non-forested habitats can also provide effective diurnal security areas, depending on the level of human activity (Thompson and Halfpenny 1989).

DSH is defined more narrowly as secure winter daytime bedding sites in highly disturbed or heavily used areas such as downhill ski areas and snowmobile play areas (Ruediger et al. 2000). It is assumed that the distribution of viable diurnal security habitat is more important in fragmented landscapes experiencing intense or widespread human activities, whether recreational or not. So long as effective security blocks are present and adequately distributed, and other critical habitat needs are met, lynx may be able to adapt to the presence of regular and concentrated human use during winter and other seasons (Ruediger et al. 2000). Diurnal security habitat allows lynx the ability to retreat from adjacent human disturbances during daytime hours, and emerge at dusk to hunt and travel when most human activity ceases. "Security habitats will generally be sites that naturally discourage winter [or other displacing] human activity because of extensive forest floor structure, or stand conditions that otherwise make human access difficult…Security habitats are likely to be most effective if they are sufficiently large to provide visual and acoustic insulation from winter [and other seasonal] human activity and to easily allow movement away from

infrequent human intrusion (Ruediger et al. 2000).” While, habitat block size, buffering distances, and other variables have not been well-studied or quantified relative to potentially disruptive human activities, a group of federal interagency biologists (known as the Lynx Biology Team) indicated that a 50 meter buffer was required to protect DSH from such human disturbances (Roberts 2009). In the general landscape, effective DSH is most needed to facilitate extended lynx movements beginning in April and ending in September, when lynx are no longer relatively sedentary on winter range subsets and are dispersing to and from mates, respectively (Shenk 2008).

Diurnal security habitat is an issue in the Mount Spokane proposal because it has the potential to affect habitat connectivity across the ski area. The closer that effective security habitat is to developed ski terrain, the closer to that terrain that a lynx could bed during the day, then cross the ski area from dusk through dawn to the next DSH block on the opposite side of developed ski terrain before the ski area reopens. Distances across developed ski terrain that are within a lynx’s daily travel distance (DTD) could allow lynx to completely avoid human interaction. Diurnal security habitat across Mount Spokane would be most limited during the day (e.g., daylight hours when skiers are present, including ski patrol activities (e.g., avalanche hazard reduction, safety sweeps for lost/injured skiers) occurring before and after the ski area has been closed to the public) during the winter ski season (mid-November to mid-April) because of backcountry use of the PASEA, and most available during the rest of the year because of the relative absence of human activity.

Based on the literature available, it is unlikely that the development of either Alternative 2 or 3 would adversely affect the ability of lynx to cross the expansion area. This concern is only relevant during the day and during the winter ski season. During the rest of the year connectivity is less of a concern because of the relative absence of human activity. Furthermore, lynx are less likely to attempt extended movements across the expanded ski area between September and April when they are more sedentary within winter subsets of their overall home range (Shenk 2008). Therefore, under Alternatives 2 and 3, the majority of lynx should still be able to cross the ski area when they are most likely to attempt such movements. Lastly, the travel distance (i.e., approximately 1 mile) across the expansion area under Alternative 2 or 3 would be less than daily movement distances of females (typically up to 3 to 6 miles); therefore, new ski area structures (e.g., lift terminals and towers) would represent inanimate objects that a lynx encountering them would simply walk around (Ruediger et al. 2000). New trails would be crossed theoretically by lynx as they are now in their undisturbed state.

Focal Wildlife Species

Table EIS 3.4-3 summarizes the known potential impacts to the twenty-one focal species under the action alternatives. As discussed above, this summary table was developed for the 2010 Master Facilities Plan FEIS and more detailed discussion about the habitat requirements and impact mechanisms can be found in *Recreation and Trail Impacts on Wildlife Species of Interest in Mount Spokane State Park,* which is included as Section II, Appendix 3.

Table EIS 3.4-3:
Potential Impacts to the Twenty-One Focal Species Under Action Alternatives

Species	Skiing	Human Presence	Developed Recreation Sites
CARNIVORES			
Gray wolf (*Canis lupus)*	No information	Direct human disturbance at den and rendezvous sites can cause stress and abandonment (Claar et al. 1999).	Mixed response to trails – both avoidance and attraction. In winter use trails for travel and in summer more likely to avoid (Creel et al. 2002, Whittington et al. 2005).
Canadian lynx *(Lynx canadensis)*	High intensity recreation can preclude lynx use of suitable habitat. Lynx may adapt to regular and concentrated recreational use if critical habitat needs are met (Ruggiero et al. 1999). See section 7.3 for further discussion	Direct human disturbance at den sites can cause stress and abandonment. Otherwise, are generally tolerant of humans (Claar et al. 1999). See section 7.3 for further discussion.	High intensity recreation can preclude lynx use of suitable habitat. Lynx may adapt to regular and concentrated recreational use if critical habitat needs are met (Ruggiero et al. 1999). See section 7.3 for further discussion.
Wolverine (*Gulo gulo)*	Groomed trails may allow greater access to winter habitats by predators.	Negative associations of wolverine presence with helicopter and backcountry skiing (Krebs et al. 2007).	Evidence mixed – sometimes avoiding human infrastructure but also have been found near active campgrounds (Claar et al. 1999, Copeland et al. 2007).
American marten *(Martes Americana)*	Groomed trails may allow greater access to winter habitats by predators.	No information	No information
UNGULATES			
Rocky mountain elk (*Cervus elaphus)*	Daily movement away from heavily used x-country ski trails (Ferguson 1982). Flight responses from skiers within 650 meters (Cassirer et al. 1992).	Can be sensitive to human presence, but also may habituate, conserving energy (Thompson and Henderson 1998).	Can be sensitive to human presence around heavily used recreation sites, but also may habituate, conserving energy (Thompson & Henderson 1998).
White-tailed deer (*Odocoileus virginianus ochrourus)*	Mule deer responses from skiers involve more running and are of greater duration than for disturbance from snowmobiles (Freddy 1986, Freddy et al. 1986).	Respond to human presence associated with various forms of recreation – show physiological response, displacement and avoidance.	In developed areas, white-tailed deer were found to become increasingly nocturnal and secretive and to use greater cover during the day (Vogel 1983 *in* Canfield et al. 1999). Ski trails may enhance mobility of deer in snow (Richens and Lavigne 1978 *in* Boyle and Samson 1985)
Moose (*Alces alces)*	Displacement and avoidance of heavily-used cross-country skiers and ski trails (Ferguson and Keith 1982).	Tolerance to humans varies by situation – habitat, social groupings, nutrition, reproductive status, & individual animals. Most effects are discussed in the literature as related to hunting season and summer wildlife watching.	Avoidance of heavily used cross-country ski trails (Ferguson et al. 1982).

Table EIS 3.4-3:
Potential Impacts to the Twenty-One Focal Species Under Action Alternatives

Species	Skiing	Human Presence	Developed Recreation Sites
BIRDS			
Northern goshawk (*Accipiter gentilis)*	No specific information, but impact of passing recreationists is likely minimal. To reduce nest site disturbance a spatial buffer of 400–500 meters is recommended (Jones 1979 in Gaines et al. 2003).	No specific information, but impact of passing recreationists is likely minimal. To reduce nest site disturbance a spatial buffer of 400–500 meters is recommended (Jones 1979 in Gaines et al. 2003).	Limited information but there are documented cases of camping near nests leading to nest failure (Speiser 1992 in Squires and Reynolds 1997). Goshawks nest further from human features (habitations and roads) than otherwise expected (Speiser and Bosakowski 1987).
Boreal owl (*Aegolius funereus richardoni)*	No specific information, but are considered fairly tolerant of human disturbance (ADFG 1994).		
Pileated woodpecker (*Dryocopus pileatus)*	No specific information, but are considered fairly tolerant of human disturbance. Some birds may change roost sites if disturbed and may aggressively defend nest (Bull and Jackson 1995).	No specific information, but are considered fairly tolerant of human disturbance. Some birds may change roost sites if disturbed and may aggressively defend nest (Bull and Jackson 1995).	Ski trail development can result in loss of snags, a key habitat component
Black-backed woodpecker (*Picoides arcticus)*	No specific information, but are considered fairly tolerant of human disturbance. May aggressively defend nest (Dixon and Saab 2000).	No specific information, but are considered fairly tolerant of human disturbance. May aggressively defend nest (Dixon and Saab 2000).	Ski trail development can result in loss of snags, a key habitat component
Dusky grouse (*Dendragapus obscurus pallidus)*	No specific information. "Increasing recreational inroads into montane areas and urbanization remain a threat to dusky grouse" (Zwickel and Bendell 2005).		
Brown Creeper (*Certhia americana)*	No information.	No information.	Fragmenting effects of trails can lead to increases in nest predation (Hickman 1990, Miller & Hobbs 2000). Trail construction can result in loss of snags and other important habitat components. No information.
Pacific (winter) wren (*Troglodytes troglodytes)*	No specific information but are considered fairly tolerant of human disturbance (Hejl et al. 2002a).	No specific information but are considered fairly tolerant of human disturbance (Hejl et al. 2002a).	Fragmenting effects of trails can lead to increases in nest predation (Hickman 1990, Miller & Hobbs 2000). Trail construction can result in loss of snags and other important habitat components.
Olive-sided flycatcher (*Contopus cooperi)*	No specific information but are considered fairly tolerant of human disturbance (Hejl et al. 2002b).	No specific information but are considered fairly tolerant of human disturbance (Hejl et al. 2002b).	Ski trail construction can result in loss of snags and other important habitat components.
SMALL MAMMALS			
Pika (*Ochotona princeps)*	Snow compaction from snowmobiles and grooming equipment would disturb use of subnivian environments and could cause mortality.	No effects to summer foraging behavior due to seasonal use of the Study Area.	Snow compaction from snowmobiles and grooming equipment would disturb use of subnivian environments and could cause mortality. Clearing for ski area facilities could result in impacts to

Table EIS 3.4-3:
Potential Impacts to the Twenty-One Focal Species Under Action Alternatives

Species	Skiing	Human Presence	Developed Recreation Sites
			foraging habitat outside of talus areas, including gathering adequate supplies of grasses stored in burrows during the summer, for winter consumption.
Pygmy shrew (*Sorex hoyi)*	Snow compaction from snowmobiles and grooming equipment would disturb use of subnivian environments and could cause mortality.	No information	Snow compaction from snowmobiles and grooming equipment would disturb use of subnivian environments and could cause mortality.
Hoary bat (*Lasiurus cinereus)*	No information.	No information.	No information.
Silver-haired bat (*Lasionycteris noctivagans)*	No information.	No information.	No information.
OTHER SPECIES			
Western toad[a] (*Bufo boreas)*	No information on specific recreation impacts in literature. However any activity that would lead to more bare ground, has been related to a decline in anuran species (Vinson 1998)		
Compton tortoise-shell butterfly (*Nymphalis vaualbum)*	No information on specific recreation impacts in scientific literature.		

Source: Mt Spokane SEIS (Washington State Parks and Recreation Commission 2012), as adapted from Section II, Appendix 3
[a] Suitable habitat for western toad is absent from the expansion area.

Overall, harvest activities where overhead cover and forest floor vegetation are disturbed can potentially impact habitats suitable for subnivean species (e.g., pika). Construction of ski trails and/or winter recreational facilities would also have the potential to compact soil surfaces and possibly create barriers for dispersal for these species. Reduction or elimination of potential habitat, compacted soil and snow surfaces (due to trail grooming and skier use) and potential dispersal barriers are the overall possible outcomes from Alternative 2 and 3. Additional impacts may also include a decline in the abundance of some prey species (small mammals and birds) utilized by subnivean species in an area larger than the area of tree removal, snow compaction, forest fragmentation effects, and groomed area.

For some species, tree removal associated with the action alternatives could be partly beneficial from a long-term, foraging habitat-perspective, since forest openings are expected to support a higher base of some prey species.For example, there is anticipated to be a longer-term, increase in overall insect abundance and biomass due to the increase in light and shrubby habitat at trail edges. However, invertebrates dependent on more closed forest conditions are likely to experience population declines in areas of vegetation conversation and their immediate surroundings.

Habitat Disturbance

Under Alternative 2, there would be approximately 76.1 acres of direct impacts to wildlife habitat resulting from vegetation removal for the construction of the proposed chairlift and seven ski trails (see Figure EIS-6). Forest overstory would be removed and shrubs taller than 18 to 24 inches would be pruned

within all cleared areas and all understory vegetation would be removed in areas where grading occurs. Woody debris generated from clearing the lift and ski trails will be retained on-site, dispersed by lopping and scattering within trails and trail edges and by corduroy placement of larger trees felled within trails. The majority of the clearing and grading impacts would occur to forested habitats, primarily the subalpine fir communities (see Table EIS 3.4-4). However, at lower elevations near the proposed bottom terminal of the new chairlift, impacts would occur to western hemlock forest type. Impacts to shrub and meadow communities would be approximately 1.2 acres.

In the southern portion of the expansion area, the natural characteristic of the terrain is open glades with scattered tree islands or dead standing trees. Forests in much of the south-central portion of the expansion area consist of open woodlands that have been significantly impacted by blowdown during windstorms, or suffered extensive tree damage from ice storms and/or root rot fungal infection. Where feasible, the proposed ski trails have been designed to utilize these existing gladed areas, minimizing the need for forest clearing to create a skiable trail. Table EIS 3.4-4 shows the impacts by vegetation community and by alternative.

Table EIS 3.4-4:
Potential Impacts to Vegetation Communities within the Mount Spokane Study Area

Scientific Abbreviation	Common Name	Alt. 2 (acres)	Alt. 3 (acres)
ABLA/ATFI	Subalpine fir/Ladyfern	0.04	0.02
ABLA/LUGLH	Subalpine fir/Hitchcock's smooth woodrush	0.0	0.9
ABLA/MEFE	Subalpine fir/purple oniongrass	6.3	6.1
ABLA/TRCA	Subalpine fir/Carolina bugbane	0.0	0.0
ABLA/VAME	Subalpine fir/thinleaf huckleberry	0.3	0.3
ABLA/XETE	Subalpine fir/common beargrass	53.2	54.0
ALVIS/Mesic Forb	Sitka alder/Mesic Forb	0.2	0.1
ALVIS/SETR	Sitka alder/Arrowleaf Groundsel	2.2	0.0
Developed	Developed	0.3	0.3
ERUMM-FEVI	Sulphur-flower buckwheat-greenleaf fescue	0.3	0.05
FEVI-FEID	Greenleaf fescue-Idaho fescue	0.9	0.6
TSHE/GYDR	Western hemlock/western oakfern	1.4	1.4
TSHE/MEFE	Western hemlock/rusty menziesia	7.0	6.7
TSHE/XETE	Western hemlock/common beargrass	4.0	4.0
TOTAL		**76.1**	**74.5**

Note: Totals may vary due to rounding (ICF 2013)

In addition to direct impacts to wildlife and wildlife habitat resulting from clearing and/or grading, edge effects would occur along the borders of proposed trails, resulting in changes in microclimate variables such as solar radiation (Ballere et al. 1996; Teramura and Sullivan 1991), air temperature, and soil moisture (Chen et al. 1990, 1992, and 1995) caused by an opening in the forest canopy. Edge effects can result in unique habitats allowing easy access to adjacent communities supporting a greater diversity of

plants and animals. Conversely, the narrow borders can also act as travel lanes for predators resulting in an increase in predation along the edges. Increased competition for resources (e.g., forage, prey, structure such as snags) may also occur when edge species colonize early successional habitats and forest edges resulting from logging and/or the construction of ski trails (Rosenberg and Raphael 1986). This change has the potential to reduce the viability of adjacent interior forest species when edge species exploit resources important interior forest species or behaviorally exclude access to these resources. These early successional habitats and forest edges may also facilitate the establishment and spread of weedy, invasive species that could degrade habitat for some wildlife. Numerous BMPs and Mitigation Measures are proposed to during both construction and ski area operations to limit the spread of weedy plants (see Table EIS 2-4).

Following construction activities, Mount Spokane would immediately reseed herbaceous and shrub vegetation cover in cleared ski trails, which would be managed for the life of the ski area (see Table EIS 2-4). Long-term impacts would persist in these modified vegetation communities as long as the area is maintained as a developed ski area. There would be no direct impacts to talus areas from clearing and grading. However, snow compaction from grooming equipment and skiing under the action alternatives has the potential to alter subnivian microclimates, increasing risk of mortality to small mammals (discussed above).

Where trees mature together in dense stands, each individual alone may not be able to withstand wind and weather if the surrounding trees are removed. Therefore, if a ski trail is cut through a forested area, additional limited mortality may be expected along trail edges due to wind throw and snow loading.

Night skiing is not part of the action alternatives; therefore, the only potential impact mechanism would be nighttime grooming of the new trails. During the winter ski season, grooming activity would theoretically impair the ability of a lynx to cross through the expansion area. Additionally, compaction from skiing and grooming has the potential to prevent American pika from emerging from subnivean tunnels during warm winter days. Cumulatively, these impacts could alter the distribution and abundance of small mammals and other prey species along the new ski trails.

Forest removal and long-term maintenance of herbaceous-dominated ski trails would benefit some species by providing enhanced feeding opportunities. For example, the combination of grasslands and low shrubs within maintained ski trails would be beneficial to ungulates (e.g., deer, elk, moose) after snow melt by providing high quality foraging habitat in close proximity to cover. Similarly, an increase in insect abundance and biomass is expected due to the increase in light and habitat diversity at ski trail edges. This would be beneficial to birds and other species that feed on insects, such as the olive-sided flycatcher. Flowering plants within maintained ski trails should provide expanded foraging opportunities for adult Compton’s tortoiseshell butterflies.

Table EIS 3.4-5 identifies the effect of Alternative 2 on habitat utilized by the twenty-one focal wildlife species.

Table EIS 3.4-5:
Change in Suitable Habitat for the Twenty-One Focal Wildlife Species Under Alternative 2

Species	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions	Estimated Habitat (acres): As Built Conditions	Net Habitat Change (acres)[a]	Comments
Canada lynx (*Lynx canadensis*)	Breeding/denning: Forest stands with tree canopy closure ≥40% and coarse woody debris ≥15%.	0	0	0	PHS database contains 15 records, dating from 1988 to 2002, within 5 miles of the expansion area, No records from the expansion area.
	Summer foraging: Forest and shrub stands with shrub cover >10%.	260	187	-73	Although adequate habitat is present, denning is not documented in Mount Spokane State Park (Romain-Bondi et al. 2009).
	Winter foraging: Forest stands with ≤ 30% slope and shrub cover ≥20%.	83	63	-20	Subalpine forest in the expansion area generally lacks large diameter trees characteristic of denning habitat.
	Dispersal: All forest and shrub stands, plus any herbaceous/nonvegetated cover type < 300' from forest or shrub stands. Source: Romain-Bondi et al. 2009; Morrison et al. 2007	275	275	0	Deep winter snow pack may reduce habitat suitability for snowshoe hare, the preferred winter prey of lynx. Human activity and disturbance associated with expanded alpine skiing may reduce suitability of winter dispersal and foraging habitat. Lynx are currently exposed to a low level of human disturbance from backcountry skiing
Gray wolf (*Canis lupis*)	Summer foraging: Deer, elk and moose habitat >0.25 mile from the Summit Road and Kit Carson Trail.	138	138	0	Wolf use of Mount Spokane State Park is believed to be limited to dispersal and foraging by lone individuals.
	Winter foraging: Deer, elk and moose habitat < 3500' in elevation. Source: Romain-Bondi et al. 2009	0	0	0	High snow depth during winter months precludes use by preferred ungulate prey.

Table EIS 3.4-5:
Change in Suitable Habitat for the Twenty-One Focal Wildlife Species Under Alternative 2

Species	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions	Estimated Habitat (acres): As Built Conditions	Net Habitat Change (acres)[a]	Comments
Wolverine (*Gulo gulo*)	Summer foraging: Any habitats >5000' in elevation. Winter foraging: Any habitats >3500' in elevation. Source: Romain-Bondi et al. 2009	191 279	191 279	0 0	Human activity and disturbance associated with expanded alpine skiing may reduce suitability of high elevation winter foraging habitat. Wolverine are currently exposed to a low level of human disturbance from backcountry skiing.
American marten (*Martes americana*)	Non-winter cover and foraging: All habitats except developed. Winter cover and foraging: Forest stands with tree canopy cover >37% and either a) 8 largest trees/ac ≥19 in dbh; b) more than 4 snags/ac with a quadratic mean diameter ≥12 in; or c) coarse woody debris between 20% and 50%. Non-forest areas <165' from suitable forest stands. Source: Romain-Bondi et al. 2009; Allen 1982; Morrison et al. 2007	277 140	276 103	-1 -37	Managed ski trails are expected to provide foraging habitat after snow melt. Snow compaction from skiing and snow grooming could adversely affect the subnivian zone within managed ski trails, reducing winter prey availability. Lop and scatter of woody debris during initial clearing and corduroy placement of felled trees could limit this effect.
Rocky Mountain elk (*Cervus elaphus*)	Cover: Forest stands >0.25 mile from Summit Road and tree canopy cover >50%. Summer/fall foraging: Any habitat [<5000' in elevation, <60% slope or >200' from the Summit Road] with tree canopy cover ≤ 40% and within 900' of elk cover. Winter foraging: Habitats <3500' in elevation. Source: Romain-Bondi et al. 2009	74 2.2 0	49 29 0	-26 +27 0	Managed ski trails in close proximity to cover would provide foraging habitat after snow melt. High snow depths preclude use of the expansion area during winter months.

Table EIS 3.4-5:
Change in Suitable Habitat for the Twenty-One Focal Wildlife Species Under Alternative 2

Species	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions	Estimated Habitat (acres): As Built Conditions	Net Habitat Change (acres)[a]	Comments
Wolverine (*Gulo gulo*)	Summer foraging: Any habitats >5000' in elevation. Winter foraging: Any habitats >3500' in elevation. Source: Romain-Bondi et al. 2009	191 279	191 279	0 0	Human activity and disturbance associated with expanded alpine skiing may reduce suitability of high elevation winter foraging habitat. Wolverine are currently exposed to a low level of human disturbance from backcountry skiing.
American marten (*Martes americana*)	Non-winter cover and foraging: All habitats except developed. Winter cover and foraging: Forest stands with tree canopy cover >37% and either a) 8 largest trees/ac ≥19 in dbh; b) more than 4 snags/ac with a quadratic mean diameter ≥12 in; or c) coarse woody debris between 20% and 50%. Non-forest areas <165' from suitable forest stands. Source: Romain-Bondi et al. 2009; Allen 1982; Morrison et al. 2007	277 140	276 103	-1 -37	Managed ski trails are expected to provide foraging habitat after snow melt. Snow compaction from skiing and snow grooming could adversely affect the subnivian zone within managed ski trails, reducing winter prey availability. Lop and scatter of woody debris during initial clearing and corduroy placement of felled trees could limit this effect.
Rocky Mountain elk (*Cervus elaphus*)	Cover: Forest stands >0.25 mile from Summit Road and tree canopy cover >50%. Summer/fall foraging: Any habitat [<5000' in elevation, <60% slope or >200' from the Summit Road] with tree canopy cover ≤ 40% and within 900' of elk cover. Winter foraging: Habitats <3500' in elevation. Source: Romain-Bondi et al. 2009	74 2.2 0	49 29 0	-26 +27 0	Managed ski trails in close proximity to cover would provide foraging habitat after snow melt. High snow depths preclude use of the expansion area during winter months.

Table EIS 3.4-5:
Change in Suitable Habitat for the Twenty-One Focal Wildlife Species Under Alternative 2

Species	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions	Estimated Habitat (acres): As Built Conditions	Net Habitat Change (acres)[a]	Comments
White-tailed deer (*Odocoileus virginianus ochrourus*)	Summer/fall foraging: Any habitat with herbaceous cover >15% or shrub cover >22%. Summer/fall cover: Forest stands with canopy cover >50%, or Any habitat with shrub/sapling tree cover >52%. Winter foraging/cover: Habitats <3000' in elevation. Source: Romain-Bondi et al. 2009; Kieffer et al. 1999	276 172 0	277 119 0	+1 -53 0	Managed ski trails in close proximity to cover would provide foraging habitat after snow melt. High snow depths preclude use of the expansion area during winter months.
Moose (*Alces alces*)	Breeding/calving: Forest and shrub stands with gentle slopes (0–10%) and southerly exposures Summer/fall foraging: Forest and shrub stands with slopes <50% and shrub cover between 5% and 95%. Summer cover: Forest stands with canopy cover >70% and canopy height > 33' Winter foraging/cover: Snow depths <35 in. Source: Romain-Bondi et al. 2009	0 274 42 0	0 275 31 0	0 +1 -11 0	Steep slopes and northwest exposures not expected to provide breeding/calving habitat. Managed ski trails in close proximity to cover would provide foraging habitat after snow melt. High snow depths preclude use of the expansion area during winter months.

Table EIS 3.4-5:
Change in Suitable Habitat for the Twenty-One Focal Wildlife Species Under Alternative 2

Species	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions	Estimated Habitat (acres): As Built Conditions	Net Habitat Change (acres)[a]	Comments
Northern goshawk (*Accipiter gentiles*)	Breeding/nesting: Forest stands with slopes <70%, tree canopy cover >40%, 8 largest trees/ac >19 in dbh, and avg tree height >65'.	44	30	-10	An intensive search survey of potentially suitable nesting habitat in 2013 detected no evidence of goshawk nesting in or within 328' of the expansion area.
	Foraging: Forest stands with slopes <70%, tree canopy cover >32%, and avg tree height >65', or Nonforest stands <4 acres interspersed with suitable forest.	93	63	-30	Forest fragmentation resulting from ski trail construction may reduce suitability of retained tree islands as foraging habitat.
	Source: Romain-Bondi et al. 2009; Morrison et al. 2007				
Boreal owl (*Aegolius funereus richardsoni*)	Breeding/nesting: Forest stands >4000' in elevation with combined trees and snags/ac >23, and 8 largest trees/ac >14 in dbh.	209	146	-63	Uncommon year-round resident in mountains of northeast Washington.
	Foraging/roosting: Forest stands >3500' with tree canopy cover >35%.	209	146	-63	Although considered fairly tolerant of human disturbance, human activity associated with expanded alpine skiing may reduce suitability of subalpine tree islands as winter foraging and roosting habitat. Boreal owl are currently exposed to a low level of human disturbance from backcountry skiing.
	Source: Romain-Bondi et al. 2009; Heinrich et al. 1999				

Table EIS 3.4-5:
Change in Suitable Habitat for the Twenty-One Focal Wildlife Species Under Alternative 2

Species	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions	Estimated Habitat (acres): As Built Conditions	Net Habitat Change (acres)[a]	Comments
White-tailed deer (*Odocoileus virginianus ochrourus*)	Summer/fall foraging: Any habitat with herbaceous cover >15% or shrub cover >22%. Summer/fall cover: Forest stands with canopy cover >50%, or Any habitat with shrub/sapling tree cover >52%. Winter foraging/cover: Habitats <3000' in elevation. Source: Romain-Bondi et al. 2009; Kieffer et al. 1999	276 172 0	277 119 0	+1 -53 0	Managed ski trails in close proximity to cover would provide foraging habitat after snow melt. High snow depths preclude use of the expansion area during winter months.
Moose (*Alces alces*)	Breeding/calving: Forest and shrub stands with gentle slopes (0–10%) and southerly exposures Summer/fall foraging: Forest and shrub stands with slopes <50% and shrub cover between 5% and 95%. Summer cover: Forest stands with canopy cover >70% and canopy height > 33' Winter foraging/cover: Snow depths <35 in. Source: Romain-Bondi et al. 2009	0 274 42 0	0 275 31 0	0 +1 -11 0	Steep slopes and northwest exposures not expected to provide breeding/calving habitat. Managed ski trails in close proximity to cover would provide foraging habitat after snow melt. High snow depths preclude use of the expansion area during winter months.

Table EIS 3.4-5:
Change in Suitable Habitat for the Twenty-One Focal Wildlife Species Under Alternative 2

Species	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions	Estimated Habitat (acres): As Built Conditions	Net Habitat Change (acres)[a]	Comments
Northern goshawk (*Accipiter gentiles*)	Breeding/nesting: Forest stands with slopes <70%, tree canopy cover >40%, 8 largest trees/ac >19 in dbh, and avg tree height >65'.	44	30	-10	An intensive search survey of potentially suitable nesting habitat in 2013 detected no evidence of goshawk nesting in or within 328' of the expansion area.
	Foraging: Forest stands with slopes <70%, tree canopy cover >32%, and avg tree height >65', or Nonforest stands <4 acres interspersed with suitable forest.	93	63	-30	Forest fragmentation resulting from ski trail construction may reduce suitability of retained tree islands as foraging habitat.
	Source: Romain-Bondi et al. 2009; Morrison et al. 2007				
Boreal owl (*Aegolius funereus richardsoni*)	Breeding/nesting: Forest stands >4000' in elevation with combined trees and snags/ac >23, and 8 largest trees/ac >14 in dbh.	209	146	-63	Uncommon year-round resident in mountains of northeast Washington.
	Foraging/roosting: Forest stands >3500' with tree canopy cover >35%.	209	146	-63	Although considered fairly tolerant of human disturbance, human activity associated with expanded alpine skiing may reduce suitability of subalpine tree islands as winter foraging and roosting habitat. Boreal owl are currently exposed to a low level of human disturbance from backcountry skiing.
	Source: Romain-Bondi et al. 2009; Heinrich et al. 1999				

Table EIS 3.4-5:
Change in Suitable Habitat for the Twenty-One Focal Wildlife Species Under Alternative 2

Species	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions	Estimated Habitat (acres): As Built Conditions	Net Habitat Change (acres)[a]	Comments
Pileated woodpecker (*Dryocopus pileatus*)	Breeding/nesting: Forest stands with tree canopy cover >50%, and 8 largest trees/ac >20 in dbh. Foraging: Forest stands with tree canopy cover >50%, and quadratic mean diameter of snags >9.8 in or cover of coarse woody debris >10%. Roosting: Forest stands with tree canopy cover >50%, and 8 largest trees/ac >16 in dbh. Source: Romain-Bondi et al. 2009; Schroeder 1983 Lewis and Azerrad 2003.	33 178 169	21 123 116	-12 -55 -53	Subalpine forest generally lacked large diameter snags required for nesting. No field evidence of foraging by pileated woodpeckers was observed above 4,808' in elevation. Subalpine forest generally lacked large diameter snags required for roosting High-altitude breeders often move into down-slope forests during winter (BirdWeb 2013).
Black-backed woodpecker (*Picoides articus*)	Breeding/nesting: Forest stands with quadratic mean diameter of snags >10 in, or # snags/ac >30. Foraging/roosting: Forest stands with # snags/ac >26. Source: Romain-Bondi et al. 2009	264 264	187 186	-77 -78	Densities of black-backed woodpeckers are expected to be low because snags within high severity tree kill areas are older than the one- to five-year mortality range preferred by this species.

Table EIS 3.4-5:
Change in Suitable Habitat for the Twenty-One Focal Wildlife Species Under Alternative 2

Species	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions	Estimated Habitat (acres): As Built Conditions	Net Habitat Change (acres)[a]	Comments
Dusky grouse (*Dendragapus obscurus pallidus*)	Breeding/nesting: Any habitat with tree canopy cover between 10 and 65%, and shrub cover between 5% and 53% or herbaceous cover between 20% and 80%. Summer foraging: Any habitat with shrub cover between 5% and 53% or herbaceous cover between 20% and 80%. Winter foraging and roosting: Dense conifer forest (assume tree canopy cover >50%. Source: Romain-Bondi et al. 2009; Schroeder 1984	196 276 155	141 276 104	-55 0 -51	Undertake altitudinal migrations between more open, lower elevation breeding areas and higher elevation wintering areas located in dense conifer forest (BirdWeb 2013). Forest edge habitat created by managed ski trails may provide suitable nesting habitat. Herbaceous cover within managed ski trails expected to provide summer foraging opportunities. Human presence and disturbance associated with expanded alpine skiing is expected to reduce suitability of subalpine tree islands as winter foraging and roosting habitat. Grouse are currently exposed to a low level of human disturbance from backcountry skiing.
Brown creeper (*Certhia americana*)	Breeding/nesting/foraging: Forest stands with [quadratic mean diameter of trees >7.5 in or quadratic mean diameter of snags >7.5 in], or 8 largest trees/ac >20 in dbh. Source: Romain-Bondi et al. 2009	264	187	-77	Forest fragmentation resulting from ski trail construction may reduce suitability of retained tree islands. High-altitude breeders may move down-slope into the foothills and valleys during winter. There may be some dispersal from eastern Washington in winter (BirdWeb 2013).
Pacific (winter) wren (*Troglodytes troglodytes*)	Breeding/nesting/summer foraging: Forest stands with tree canopy cover >35% and cover of coarse woody debris >7.5%, or Any habitat within 25’ of a stream. Source: Romain-Bondi et al. 2009; Gould et al. 1999	187	131	-56	Wrens from colder locales move to more temperate habitats throughout the western U.S. during winter. Forest fragmentation resulting from ski trail construction may reduce suitability of retained tree islands.

Table EIS 3.4-5:
Change in Suitable Habitat for the Twenty-One Focal Wildlife Species Under Alternative 2

Species	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions	Estimated Habitat (acres): As Built Conditions	Net Habitat Change (acres)[a]	Comments
Olive-sided flycatcher (*Contopus cooperi*)	Breeding/nesting: Forest stands with tree canopy cover <50%, and a tree density between 25 and 53 trees per acre or snag density between 6 and 17 trees per acre. Source: Romain-Bondi et al. 2009; Vesley et al. 2007	12	10	-2	Neotropical migrant not present during winter months. Openings created by ski trails may increase levels of nest parasitism by brown-headed cowbirds, and increase rates of nest predation by ravens and other avian predators. Habitat edge created by managed ski trails may provide beneficial foraging habitat for olive-sided flycatcher, especially post-breeding.
American pika (*Ochotona princes*)	Breeding/nesting/foraging: Talus, and adjacent upland meadow within 5' of talus, that are above 5000' in elevation. Source: Romain-Bondi et al. 2009	2	2	0	Habitat suitability of talus within ski trails may be reduced during winter if snow compaction from skiing and grooming degrades subnivian zone.
American pygmy shrew (*Sorex hoyi*)	Breeding/parturition/foraging: All habitats except talus and developed. Source: Romain-Bondi et al. 2009	275	274	-1	Snow compaction from skiing and snow grooming may reduce habitat suitability of the subnivian zone within managed ski trails Lop and scatter of woody debris during initial clearing and corduroy placement of felled trees could limit adverse effects.
Silver-haired bat (*Lasionycteris noctivagans*)	Foraging/roosting/breeding: All habitats except developed. Source: Romain-Bondi et al. 2009	277	276	-1	Local summer resident. Although clearing for ski trails will remove roosting habitat, the managed ski trails and forest edge represent foraging habitat.
Hoary bat (*Lasiurus cinereus*)	Foraging/roosting: All habitats except developed. Source: Romain-Bondi et al. 2009	277	276	-1	Rare local summer (non-breeding) resident. Although clearing for ski trails will remove roosting habitat, the managed ski trails and forest edge represent foraging habitat.

Table EIS 3.4-5:
Change in Suitable Habitat for the Twenty-One Focal Wildlife Species Under Alternative 2

Species	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions	Estimated Habitat (acres): As Built Conditions	Net Habitat Change (acres)[a]	Comments
Western toad (*Bufo boreas*)	Breeding/metamorphosis: Warm, shallow water bodies. Foraging/migration: Stream corridors, and forest stands with <75% tree canopy cover, that lie within 3280' of breeding ponds. Source: Romain-Bondi et al. 2009	0 0	0 0	0 0	Adequate water bodies for spawning are absent from the steep, high elevation slopes and headwater streams. Significant upslope movement into the expansion area by post breeding adults or juveniles not expected.
Compton's tortoiseshell butterfly (*Nymphalis vau-album*)	Breeding/metamorphosis: Habitats containing willow, birch or aspen. Foraging: All habitats, except talus, with tree canopy closure <30%; or All habitats within 30 m of streams. Source: Romain-Bondi et al. 2009	0 109	0 169	0 +60	Absence of preferred larval host plants (willow, birch or aspen) precludes breeding and larval metamorphosis. Flowering plants within managed ski trails expected to provide foraging opportunities for adults.

[a] Substantial overlap may exist between the various habitat categories examined for a species. Consequently, net habitat change is not additive for a species.

Under Alternative 2, indirect impacts to wildlife and wildlife habitat could occur from future maintenance of ski trails and chairlift terminals. These impacts would include, but are not limited to, hazard tree removal and periodic mowing/brushing to maintain ski trails in a modified condition suitable for skiing. Indirect impacts as a result of these activities would include the increase in human activity and noise, which could result in avoidance of the area by some wildlife species. These occasions are expected to be brief and the impact of additional presence and noise is expected to cause only temporary and localized avoidance. Mowing/brushing would prevent future forest regeneration by not allowing saplings to establish during the life of the ski area.

Breeding/Rearing Disturbance

Noise generated during construction will represent an unavoidable short-term impact on wildlife. The duration and level of construction noise created during ground clearing and excavation activities may disturb breeding and nesting behavior, particularly of birds such as songbird species and northern goshawks. During 2013, two broadcast acoustical surveys and one intensive search survey were conducted for northern goshawk. The surveys encompassed the 279-acre expansion area, as well as an 800 meter buffer to the north and west of the expansion area. No visual or auditory detections of northern goshawk were recorded and no nest structures were encountered (see Appendix E). Two additional broadcast acoustical surveys have been scheduled for the summer of 2014, the results of which will be included in the Final EIS.

Although bird species will vary in their sensitivity to noise disturbance, their nesting life-stage is critical to population viability. Loud and continuous noise events during the egg-laying, incubating, and nestling stages causes adult birds to vacate nests temporarily, if not permanently. Eggs and hatchling birds left unattended in the nest are subject to predation, inclement weather, and abandonment (Anderson and Squires 1997). Nesting season for songbird species such as brown creepers may begin in April but peaks in May, June, and July (NatureServe 2009). Similarly, for raptor species such as the Northern goshawk, first clutches of eggs are produced in the end of April, however, this may be later in the season at higher elevations with colder weather patterns (NatureServe 2009).

Similarly, the noise generated during implementation of Alternative 2 would potentially affect rearing sites for occupant mammal species such as marten, moose, coyote, deer, elk, bats, and pika. This has the potential to result in reduced attentiveness to young, disruption of feeding patterns, abandonment of nests or dens, and/or cause adults to undertake additional risks to their young by moving them to a new location (Snetsinger and White 2009). Bats give birth and raise their young during the late spring, within the months of June and July (NatureServe 2009). Small mammals, such as the pika, begin parturition in May with a peak in June (NatureServe 2009). Martens and coyotes, medium-sized carnivores of Mount Spokane State Park, den and raise their young during the spring months of March to June (Ferguson 2008; NatureServe 2009). After a review of the mammal species listed in the twenty-one species of interest, the critical period for monitoring the effect of construction activities during the denning and young rearing life-stages for most mammal species within the Study Area is March 1 to July 15. If

construction is required during this time period, monitoring by a qualified wildlife biologist will be required to determine the presence of and effect of construction activities on these species (see Table EIS 2-4). Wildlife monitoring will be initiated prior to commencement of construction activities and continue until July 15th. In the event one or more of these species is detected between March 1 and July 15, construction in the immediate area would cease immediately, and all project activities would relocate to a location approved by a qualified wildlife biologist.

Displacement/Avoidance Behavior

Increased use of new ski corridors and vegetation removal associated with the proposed project may result in displacement/avoidance behavior of wildlife. In addition, ski trail grooming is often accomplished at night, and noise and light from this activity, particularly in the proposed ski pod may temporarily alter use of the area by nocturnal species (e.g., avoidance). Wildlife often moves away from human activity, or they intentionally avoid associated human recreation sites. Animals displaced by recreation are less likely to survive and reproduce where habitat is unfamiliar or inferior. During breeding, rearing, and winter and early spring foraging seasons, displacement stress on wildlife is likely to increase due to susceptibility to weather, illness, predation, thus reducing individual fitness (Romain-Bondi 2009).

The construction of chairlift and ski trails would reduce the overall amount of undisturbed habitat in the proposed expansion area. Increases in human activity associated with chairlift and ski trail development may reduce the effectiveness of the area as travel habitat for all species, particularly for species sensitive to human activity. Short-term direct impacts include noise and activity associated with ski lift construction and ski trail clearing and grading. Wildlife species that are more dependent on migratory corridors (intact habitat) will be more susceptible to displacement and associated stresses. While this habitat may be undisturbed, existing human presence (e.g., backcountry skiers, hikers) may currently deter the use of the area for some species sensitive to human presence, such as gray wolf and wolverine.

During the summer, ski lift and trail maintenance activities may have direct impacts on animals potentially moving through the area, as the associated noise and activity may alter use of the area. These activities would be expected to be of short duration with lift maintenance occurring on an annual basis and ski trail maintenance occurring less frequently, as vegetation growth rates are slow.

Implementation of either of the action alternatives has the potential to displace some wildlife species from their existing habitat into habitats that may already be occupied, potentially leading to mortality in some species. This displacement and avoidance behavior would be the result of increased human presence and loss of habitat in the Study Area.

Snag/Coarse Woody Debris Reduction

Current density of snags and coarse woody debris throughout the Study Area is relatively high, due to wind throw, ice damage, disease and insect outbreaks. A number of the twenty-one focal species depend on snags and coarse woody debris as critical habitat elements for foraging, reproduction, roosting and

dispersal habitat (see summary table in Romain-Bondi et al. 2009, Tables 6–9, pgs 19–25). Specifically, large trees and snags are preferred habitat elements for a host of the focal species within the Study Area including: silver-haired and hoary bats, olive-sided flycatchers, northern goshawks, brown creepers, pileated woodpeckers, American marten, and lynx. Similarly, coarse woody debris is a preferred habitat element for American marten, lynx, pileated woodpecker, winter wren, American pygmy shrew, and western toad. Large trees, snags, and coarse woody debris are important to these focal species for nesting, denning, roosting, cover and/or foraging habitat. All large trees and snags (over 20 inches dbh) located in proposed tree islands will be left standing unless they pose a hazard to ski area guests. No formal trails should be routed into these preferred wildlife habitat elements in tree islands.

Habitat Connectivity

Habitat connectivity and fragmentation refer to the size, quality, and spatial arrangement of patches of a species' habitat across the landscape, particularly the number and arrangement of these patches as they relate to the dispersal of organisms. No defined wildlife corridors have been mapped for the expansion area. A generalized wildlife travel corridor links Mount Spokane State Park with the rest of the Selkirk Mountains to the north. Both action alternatives would affect habitat connectivity to varying degrees. Ongoing and future projects occurring in and around previously developed areas that currently receive a high level of human activity would continue to limit the use of some portions of those areas by wildlife.

Habitat fragmentation/edge effects are associated with many projects that result in vegetation removal. It is anticipated that the forest fragmentation effects on songbirds under the action alternatives would mainly include nest parasitism and presence of nest predators (such as brown-headed cowbirds) in the new ski trail corridors and adjacent interior forest.

As a worst case scenario, habitat connectivity across the PASEA is addressed from the perspective of transient lynx, presumably less familiar with landscape features and exhibiting a broader selection of habitat types for movements than resident lynx. Potential movement patterns of transient lynx (dispersing and male mating season) would also cover those of resident lynx (i.e., within annual home ranges and foraging movements within the winter home range subset).

The ability of lynx to cross the PASEA is an issue as animals move between largely intact habitat blocks. Habitat connectivity across the PASEA is most limited during the winter ski season (mid-November to mid-April), when widespread human disturbance from skiing occurs during daylight hours. This provides an approximately 16-hour interval each day for lynx to cross the PASEA relatively undisturbed by human presence during the crepuscular and nocturnal hours when lynx are most likely to be active.

Although lynx are primarily active during nocturnal and crepuscular activity periods that are largely exclusive with diurnal skiing, they may be active at any time of day. As a worst case scenario, what would happen to a lynx "caught" on ski terrain while attempting to cross areas disturbed by skiers in its daybed or in an intertrail island? Possibilities include (1) the lynx continuing across the skiing area while avoiding skiers until it was out of active ski terrain; (2) the lynx stopping in forested cover or moving to

an intertrail island, where it would likely be disturbed over the course of the ski day, before continuing its crossing; or (3) the lynx retreats back through the ski area where it may be stressed by skiers. Lynx have been observed in active ski terrain during operating hours at Durango Mountain Resort and Telluride Ski Area and remained in the vicinity of those ski areas after those encounters (Tompkins and Grother, 2006). While those two ski areas are in different contexts than Mount Spokane, these accounts provide insight into how some lynx respond to active ski terrain. Other, similar anecdotal accounts have been documented at Canadian ski areas (Roe et al. 2000). However, as a worst case scenario, (1) all such encounters would result in harassment, (2) encounters with humans that delayed the ski area crossing would result in further impaired connectivity (i.e., between effective patches of DSH and higher quality foraging habitat on each end of the ski area), and (3) a lack of connectivity for those lynx that might abort the crossing attempt. The significance of that eventuality should be tempered by the likelihood of a lynx not being able to cross the ski area at all and the likelihood of a winter crossing, when lynx are generally sedentary within higher quality winter range subsets where the prey base is more abundant.

The best available data indicate “the distribution of habitats across a lynx range should consider daily movement distances of resident females (typically up to 3 to 6 miles)” (Ruediger et al. 2000). With relatively no vegetation clearing for ski area facilities in the PASEA, there are currently no vegetative barriers to lynx movement. For clarity, should new ski area facilities be introduced into the PASEA the data indicate that if the ski trail development is less than a minimum of 3 miles in width, it would not exceed the maximum 3- to 6-mile range recommended for project planning (Ruediger et al. 2000, p. 79).

With respect to the ability of lynx to cross the expansion area, it is likely that virtually all lynx could cross the area during the majority of the months outside of the ski season and that most lynx should be able to cross during the ski season if they exhibit their typical nocturnal and crepuscular activity patterns. This conclusion is based on (1) lynx have been documented crossing through other ski areas and their surrounding areas (e.g., Beaver Creek Resort, Vail Resort, Vail Pass, Copper Mountain Resort, Keystone Resort, Arapahoe Basin, Wolf Creek Ski Area, Durango Mountain Resort, Telluride Ski Resort, and Canadian ski areas); (2) that lynx are largely sedentary on their winter range subsets (i.e., they would not likely attempt to cross the ski area during winter, but they are physically capable of doing so if they so choose); (3) that existing distances across the existing and proposed ski terrain are well below the maximum 3- to 6-mile range recommended for project planning; and (4) that if a lynx wanted to, it could move further than 6 miles overnight (Thompson, unpublished data, Roe et al. 2000; Ruediger et al. 2000; USDA Forest Service 2008). Nevertheless, if a lynx attempted to cross developed and active ski terrain during the day during the winter ski season, that movement attempt may be impaired or thwarted.

3.4.3.3 Alternative 3

Direct and indirect impacts to wildlife under Alternative 3 would be essentially the same as Alternative 2. Under Alternative 3, there would be approximately 74.2 acres of direct impacts to vegetation communities resulting from vegetation removal for the construction of the proposed chairlift and seven ski trails. This equates to approximately 1.9 acres less vegetation removal when compared to

Alternative 2 (see Figure EIS-7). Table EIS 3.4-6 identifies the estimated changes to habitat utilized by the twenty-one focal wildlife species under Alternative 3.

Table EIS 3.4-6:
Change in Suitable Habitat for the Twenty-One Focal Wildlife Species Under Alternative 3

Species	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions	Estimated Habitat (acres): As Built Conditions	Net Habitat Change (acres)[a]	Comments
Canada lynx (*Lynx canadensis*)	Breeding/denning: Forest stands with tree canopy closure ≥40% and coarse woody debris ≥15%.	0	0	0	PHS database contains 15 records, dating from 1988 to 2002, within 5 miles of the expansion area, No records from the expansion area.
	Summer foraging: Forest and shrub stands with shrub cover >10%.	260	187	-73	Although adequate habitat is present, denning is not documented in Mount Spokane State Park (Romain-Bondi et al. 2009).
	Winter foraging: Forest stands with ≤ 30% slope and shrub cover ≥20%.	83	63	-20	Subalpine forest in the expansion area generally lacks large diameter trees characteristic of denning habitat.
	Dispersal: All forest and shrub stands, plus any herbaceous/nonvegetated cover type < 300’ from forest or shrub stands. Source: Romain-Bondi et al. 2009; Morrison et al. 2007	275	275	0	Deep winter snow pack may reduce habitat suitability for snowshoe hare, the preferred winter prey of lynx. Human activity and disturbance associated with expanded alpine skiing may reduce suitability of winter dispersal and foraging habitat. Lynx are currently exposed to a low level of human disturbance from backcountry skiing
Gray wolf (*Canis lupis*)	Summer foraging: Deer, elk and moose habitat >0.25 mile from the Summit Road and Kit Carson Trail.	138	138	0	Wolf use of Mount Spokane State Park is believed to be limited to dispersal and foraging by lone individuals.
	Winter foraging: Deer, elk and moose habitat < 3500’ in elevation. Source: Romain-Bondi et al. 2009	0	0	0	High snow depth during winter months precludes use by preferred ungulate prey.

Table EIS 3.4-6:
Change in Suitable Habitat for the Twenty-One Focal Wildlife Species Under Alternative 3

Species	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions	Estimated Habitat (acres): As Built Conditions	Net Habitat Change (acres)[a]	Comments
Wolverine (*Gulo gulo*)	Summer foraging: Any habitats >5000' in elevation. Winter foraging: Any habitats >3500' in elevation. Source: Romain-Bondi et al. 2009	191 279	191 279	0 0	Human activity and disturbance associated with expanded alpine skiing may reduce suitability of high elevation winter foraging habitat. Wolverine are currently exposed to a low level of human disturbance from backcountry skiing.
American marten (*Martes americana*)	Non-winter cover and foraging: All habitats except developed. Winter cover and foraging: Forest stands with tree canopy cover >37% and either a) 8 largest trees/ac ≥19 in dbh; b) more than 4 snags/ac with a quadratic mean diameter ≥12 in; or c) coarse woody debris between 20% and 50%. Non-forest areas <165' from suitable forest stands. Source: Romain-Bondi et al. 2009; Allen 1982; Morrison et al. 2007	277 140	276 103	-1 -37	Managed ski trails are expected to provide foraging habitat after snow melt. Snow compaction from skiing and snow grooming could adversely affect the subnivian zone within managed ski trails, reducing winter prey availability. Lop and scatter of woody debris during initial clearing and corduroy placement of felled trees could limit this effect.
Rocky Mountain elk (*Cervus elaphus*)	Cover: Forest stands >0.25 mile from Summit Road and tree canopy cover >50%. Summer/fall foraging: Any habitat [<5000' in elevation, <60% slope or >200' from the Summit Road] with tree canopy cover ≤ 40% and within 900' of elk cover. Winter foraging: Habitats <3500' in elevation. Source: Romain-Bondi et al. 2009	74 2.2 0	49 29 0	-25 +27 0	Managed ski trails in close proximity to cover would provide foraging habitat after snow melt. High snow depths preclude use of the expansion area during winter months.

Table EIS 3.4-6:
Change in Suitable Habitat for the Twenty-One Focal Wildlife Species Under Alternative 3

Species	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions	Estimated Habitat (acres): As Built Conditions	Net Habitat Change (acres)[a]	Comments
White-tailed deer *(Odocoileus virginianus ochrourus*)	Summer/fall foraging: Any habitat with herbaceous cover >15% or shrub cover >22%.	276	277	+1	Managed ski trails in close proximity to cover would provide foraging habitat after snow melt.
	Summer/fall cover: Forest stands with canopy cover >50%, or	172	119	-53	High snow depths preclude use of the expansion area during winter months.
	Any habitat with shrub/sapling tree cover >52%.	0	0	0	
	Winter foraging/cover: Habitats <3000’ in elevation. Source: Romain-Bondi et al. 2009; Kieffer et al. 1999				
Moose (*Alces alces*)	Breeding/calving: Forest and shrub stands with gentle slopes (0–10%) and southerly exposures	0	0	0	Steep slopes and northwest exposures not expected to provide breeding/calving habitat.
	Summer/fall foraging: Forest and shrub stands with slopes <50% and shrub cover between 5% and 95%.	274	275	+1	Managed ski trails in close proximity to cover would provide foraging habitat after snow melt.
	Summer cover: Forest stands with canopy cover >70% and canopy height > 33’	42	31	-11	High snow depths preclude use of the expansion area during winter months.
	Winter foraging/cover: Snow depths <35 in. Source: Romain-Bondi et al. 2009	0	0	0	

Table EIS 3.4-6:
Change in Suitable Habitat for the Twenty-One Focal Wildlife Species Under Alternative 3

Species	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions	Estimated Habitat (acres): As Built Conditions	Net Habitat Change (acres)[a]	Comments
Northern goshawk (*Accipiter gentiles*)	Breeding/nesting: Forest stands with slopes <70%, tree canopy cover >40%, 8 largest trees/ac >19 in dbh, and avg tree height >65'.	44	30	-10	An intensive search survey of potentially suitable nesting habitat in 2013 detected no evidence of goshawk nesting in or within 328' of the expansion area.
	Foraging: Forest stands with slopes <70%, tree canopy cover >32%, and avg tree height >65', or Nonforest stands <4 acres interspersed with suitable forest. Source: Romain-Bondi et al. 2009; Morrison et al. 2007	93	63	-30	Forest fragmentation resulting from ski trail construction may reduce suitability of retained tree islands as foraging habitat.
Boreal owl (*Aegolius funereus richardsoni*)	Breeding/nesting: Forest stands >4000' in elevation with combined trees and snags/ac >23, and 8 largest trees/ac >14 in dbh.	209	146	-63	Uncommon year-round resident in mountains of northeast Washington.
	Foraging/roosting: Forest stands >3500' with tree canopy cover >35%. Source: Romain-Bondi et al. 2009; Heinrich et al. 1999	209	146	-63	Although considered fairly tolerant of human disturbance, human activity associated with expanded alpine skiing may reduce suitability of subalpine tree islands as winter foraging and roosting habitat. Boreal owl are currently exposed to a low level of human disturbance from backcountry skiing.

Table EIS 3.4-6:
Change in Suitable Habitat for the Twenty-One Focal Wildlife Species Under Alternative 3

Species	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions	Estimated Habitat (acres): As Built Conditions	Net Habitat Change (acres)[a]	Comments
Pileated woodpecker (*Dryocopus pileatus*)	Breeding/nesting: Forest stands with tree canopy cover >50%, and 8 largest trees/ac >20 in dbh.	33	21	-12	Subalpine forest generally lacked large diameter snags required for nesting.
	Foraging: Forest stands with tree canopy cover >50%, and quadratic mean diameter of snags >9.8 in or cover of coarse woody debris >10%.	178	123	-55	No field evidence of foraging by pileated woodpeckers was observed above 4,808' in elevation.
	Roosting: Forest stands with tree canopy cover >50%, and 8 largest trees/ac >16 in dbh.	169	116	-53	Subalpine forest generally lacked large diameter snags required for roosting High-altitude breeders often move into down-slope forests during winter (BirdWeb 2013).
	Source: Romain-Bondi et al. 2009; Schroeder 1983 Lewis and Azerrad 2003.				
Black-backed woodpecker (*Picoides articus*)	Breeding/nesting: Forest stands with quadratic mean diameter of snags >10 in, or # snags/ac >30.	264	187	-77	Densities of black-backed woodpeckers are expected to be low because snags within high severity tree kill areas are older than the one- to five-year mortality range preferred by this species.
	Foraging/roosting: Forest stands with # snags/ac >26.	264	186	-78	
	Source: Romain-Bondi et al. 2009				

Table EIS 3.4-6:
Change in Suitable Habitat for the Twenty-One Focal Wildlife Species Under Alternative 3

Species	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions	Estimated Habitat (acres): As Built Conditions	Net Habitat Change (acres)[a]	Comments
Dusky grouse (*Dendragapus obscurus pallidus*)	Breeding/nesting: Any habitat with tree canopy cover between 10 and 65%, and shrub cover between 5% and 53% or herbaceous cover between 20% and 80%.	196	141	-55	Undertake altitudinal migrations between more open, lower elevation breeding areas and higher elevation wintering areas located in dense conifer forest (BirdWeb 2013).
	Summer foraging: Any habitat with shrub cover between 5% and 53% or herbaceous cover between 20% and 80%.	276	276	0	Forest edge habitat created by managed ski trails may provide suitable nesting habitat.
	Winter foraging and roosting: Dense conifer forest (assume tree canopy cover >50%.	155	104	-51	Herbaceous cover within managed ski trails expected to provide summer foraging opportunities. Human presence and disturbance associated with expanded alpine skiing is expected to reduce suitability of subalpine tree islands as winter foraging and roosting habitat. Grouse are currently exposed to a low level of human disturbance from backcountry skiing.
	Source: Romain-Bondi et al. 2009; Schroeder 1984				
Brown creeper (*Certhia americana*)	Breeding/nesting/foraging: Forest stands with [quadratic mean diameter of trees >7.5 in or quadratic mean diameter of snags >7.5 in], or 8 largest trees/ac >20 in dbh.	264	187	-77	Forest fragmentation resulting from ski trail construction may reduce suitability of retained tree islands. High-altitude breeders may move down-slope into the foothills and valleys during winter. There may be some dispersal from eastern Washington in winter (BirdWeb 2013).
	Source: Romain-Bondi et al. 2009				
Pacific (winter) wren (*Troglodytes troglodytes*)	Breeding/nesting/summer foraging: Forest stands with tree canopy cover >35% and cover of coarse woody debris >7.5%, or Any habitat within 25’ of a stream.	187	131	-56	Wrens from colder locales move to more temperate habitats throughout the western U.S. during winter. Forest fragmentation resulting from ski trail construction may reduce suitability of retained tree islands.
	Source: Romain-Bondi et al. 2009; Gould et al. 1999				

Table EIS 3.4-6:
Change in Suitable Habitat for the Twenty-One Focal Wildlife Species Under Alternative 3

Species	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions	Estimated Habitat (acres): As Built Conditions	Net Habitat Change (acres)[a]	Comments
Olive-sided flycatcher (*Contopus cooperi*)	Breeding/nesting: Forest stands with tree canopy cover <50%, and a tree density between 25 and 53 trees per acre or snag density between 6 and 17 trees per acre. Source: Romain-Bondi et al. 2009; Vesley et al. 2007	12	10	-2	Neotropical migrant not present during winter months. Openings created by ski trails may increase levels of nest parasitism by brown-headed cowbirds, and increase rates of nest predation by ravens and other avian predators. Habitat edge created by managed ski trails may provide beneficial foraging habitat for olive-sided flycatcher, especially post-breeding.
American pika (*Ochotona princes*)	Breeding/nesting/foraging: Talus, and adjacent upland meadow within 5' of talus, that are above 5000' in elevation. Source: Romain-Bondi et al. 2009	2	2	0	Habitat suitability of talus within ski trails may be reduced during winter if snow compaction from skiing and grooming degrades subnivian zone.
American pygmy shrew (*Sorex hoyi*)	Breeding/parturition/foraging: All habitats except talus and developed. Source: Romain-Bondi et al. 2009	275	274	-1	Snow compaction from skiing and snow grooming may reduce habitat suitability of the subnivian zone within managed ski trails Lop and scatter of woody debris during initial clearing and corduroy placement of felled trees could limit adverse effects.
Silver-haired bat (*Lasionycteris noctivagans*)	Foraging/roosting/breeding: All habitats except developed. Source: Romain-Bondi et al. 2009	277	276	-1	Local summer resident. Although clearing for ski trails will remove roosting habitat, the managed ski trails and forest edge represent foraging habitat.
Hoary bat (*Lasiurus cinereus*)	Foraging/roosting: All habitats except developed. Source: Romain-Bondi et al. 2009	277	276	-1	Rare local summer (non-breeding) resident. Although clearing for ski trails will remove roosting habitat, the managed ski trails and forest edge represent foraging habitat.

Table EIS 3.4-6:
Change in Suitable Habitat for the Twenty-One Focal Wildlife Species Under Alternative 3

Species	Key Habitat Elements Used to Model Suitable Habitat	Estimated Habitat (acres): Existing Conditions	Estimated Habitat (acres): As Built Conditions	Net Habitat Change (acres)[a]	Comments
Western toad (*Bufo boreas*)	Breeding/metamorphosis: Warm, shallow water bodies. Foraging/migration: Stream corridors, and forest stands with <75% tree canopy cover, that lie within 3280' of breeding ponds. Source: Romain-Bondi et al. 2009	0 0	0 0	0 0	Adequate water bodies for spawning are absent from the steep, high elevation slopes and headwater streams. Significant upslope movement into the expansion area by post breeding adults or juveniles not expected.
Compton's tortoiseshell butterfly (*Nymphalis vau-album*)	Breeding/metamorphosis: Habitats containing willow, birch or aspen. Foraging: All habitats, except talus, with tree canopy closure <30%; or All habitats within 30 m of streams. Source: Romain-Bondi et al. 2009	0 109	0 169	0 +60	Absence of preferred larval host plants (willow, birch or aspen) precludes breeding and larval metamorphosis. Flowering plants within managed ski trails expected to provide foraging opportunities for adults.

[a] Substantial overlap may exist between the various habitat categories examined for a species. Consequently, net habitat change is not additive for a species.

3.4.4 Mitigation Measures

Potential direct and indirect effects of the action alternatives would be minimized through implementation of the BMPs and Mitigation Measures described in Table EIS 2-4 and through project specific operational plans. Each mitigation measure was designed to address the focal wildlife species and their habitat associations and requirements. For example, the mitigation measure table includes a requirement that all large trees and snags (over 20 inches dbh) located in proposed tree islands will be left standing unless they are identified by State Parks as a hazard tree.

3.4.5 Cumulative Effects

Cumulative impacts are the effects that may result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Generally, an impact can be considered cumulative if: a) effects of several actions occur in the same locale; b) effects on a particular resource are similar in nature; and c) effects are long-term in nature. Potential areas where cumulative impacts might occur to wildlife resources as a result of the construction and operation of new ski area facilities are discussed below.

For purposes of this analysis, cumulative effects to vegetation and wildlife habitat are considered at the site scale (i.e., the 279-acre Study Area). The comprehensive trail plan, which is part of the 2010 Master Facilities Plan, contemplates a multi-use trail in the PASEA, depending upon the land classification adopted. Implementation of the trail plan could overlap in space and time with the projects being analyzed within this Draft EIS; therefore, it would contribute cumulatively to the impacts to vegetation and wildlife within the Study Area through alteration of vegetation and habitat.

The alteration of vegetation communities described in section 3.2 – Vegetation has the potential to impact wildlife habitat. For purposes of this analysis, cumulative impacts could result from both long-term and short-term losses of wildlife habitat. A long-term loss of wildlife habitat occurs when the native vegetation community is not easily replaced. For example, the removal of forested habitat is a long-term impact as the re-growth of the forest occurs on the order of decades. Similarly, the creation of new impervious surfaces in any community type results in the long-term loss of wildlife habitat. Short-term losses of habitat occur when herbaceous and shrub communities are disturbed, but are ultimately revegetated in a short (one to two years) period of time. It should be noted that routine vegetation maintenance activities to maintain the developed ski terrain in a non-forested state will require periodic mowing, which may limit the effectiveness of wildlife use. A second type of short-term cumulative impact occurs during construction phases of the various actions required to implement either of the action alternatives. During this phase, noise generated by equipment and the increased human presence can impact wildlife in the vicinity of the action. This typically leads to avoidance behaviors by wildlife species and may disrupt normal behavioral patterns.

A landscape level analysis of cumulative effects was performed for the Mt. Spokane State Park Master Facility Plan in 2009. Additional detail on the cumulative effects at a regional and local level in the

context of the surrounding landscape and the human activities and development that have occurred can be found in Morrison and Bondi 2009.

3.5 VISUAL RESOURCES

3.5.1 Introduction

Mount Spokane is prominent from many vantages within Spokane County. MS 2000's proposal, which involves the development of a chairlift and associated trails into the 279-acre expansion area, has the potential to affect the visual resources of the area. As such, this section evaluates the visual resources that could be affected as a result of the action alternatives. Washington State Parks does not have specific scenery related guidance for the development of facilities on state lands, with the exception of historic cultural landscapes; therefore, this analysis follows the USFS Scenery Management System (SMS) (USDA Forest Service 1995).

Under its Cultural Resource Management Policy, the agency is directed to use the Secretary of the Interior's "Standards for the Treatment of Historic Properties" as general guidance for work on any historic properties, including cultural landscapes. Analysis of cultural landscape impacts is included under Historic, Cultural and Archaeological Resources (see section 3.7.1).

Analysis of the aesthetic environment requires an evaluation of the Study Area and its ability to absorb the effects of both historic and ongoing human modification. Slope, natural vegetation types and patterns, topography, and viewing distance are important factors in this analysis. As discussed below, aside from the summit of Mount Spokane, the Study Area is visible from limited vantage points west of Mount Spokane State Park (e.g., N. Elk-Chattaroy Road, US Highway 2). Therefore, three critical viewpoints proximate to N. Elk-Chattaroy Road were used in this analysis. Effects will be disclosed based on visual changes to the landscape character as viewed from specific critical viewpoints (see section 3.5.3.3) within each area. The following presents a brief description of each visual analysis area.

3.5.2 Scenic Environment Management

The Scenery Management System (SMS) was adopted in 1995 as the primary scenery management direction by the Forest Service. In brief, the SMS is a systematic approach for assessing scenic resources in a Study Area to help make management decisions concerning a specific project.

3.5.2.1 Scenic Integrity and Landscape Character

The SMS measures the degree of "intactness" and "wholeness" of the landscape with "scenic integrity." SMS utilizes Scenic Integrity Levels (SIL) by using the frame of reference for measuring achievement of SIL as the valued attributes of the "existing" landscape character "being viewed." In essence, Scenic Integrity Levels are how scenery on public lands is measured in terms of degrees of deviation from the attributes of the natural appearing landscape. Scenic integrity levels are based on a standard set of criteria

established in the Forest Service's SMS (USDA Forest Service 1995) and include the following five classes described in Table EIS 3.5-1:

Table EIS 3.5-1:
Description of Scenic Integrity Levels

Scenic Integrity Level	Perception, Degree of Deviation
Very High	None. Existing landscape character is intact with only minute deviations.
High	Not Evident. Deviations may be present but must repeat form, line, color and texture of characteristic landscape in scale.
Moderate	Evident, but not Dominant. Noticeable deviations must remain visually subordinate to landscape character.
Low	Dominant. Deviations begin to dominate but borrow valued attributes such as size, shape, edge and patterns of natural openings or vegetative types.
Very Low	Very Dominant. Deviations strongly dominate valued landscape character. They may not borrow attributes such as size, shape, edge and pattern but should be shaped to blend with natural terrain.

Source: USDA, 1995

3.5.2.2 Scenery Management System Distance Zones

Viewing distance is important in determining how change is perceived across a landscape. Distance zones are divisions of a particular landscape being viewed, and are used to describe the part of a characteristic landscape that is being inventoried or evaluated.

- Immediate Foreground: This zone begins at the viewer and extends to about 300 feet. Individual leaves, flowers, twigs, bark texture, and other details dominate this view.
- Foreground: This zone is usually limited to areas within 300 feet to 0.5 mile (not to exceed 0.5 mile) of the observer, but it must be determined on a case-by-case basis, as should any distance zoning. Generally, detail of landforms is more pronounced when viewed from within the foreground zone.
- Middleground: Alterations in the middleground (0.5 to 4 miles from the observer) are less distinctive. Texture is normally characterized by the masses of trees in stands or uniform tree cover.
- Background: This zone extends from middleground (minimum of 4 miles between the observer and the area being viewed) to infinity. Shape may remain evident beyond 10 miles, especially if it is inconsistent with other landscape forms. Beyond 10 miles, alteration in landscape character becomes obscure.

3.5.2.3 The Built Environment Image Guide

The Built Environment Image Guide (BEIG) was prepared by the Forest Service for the "thoughtful design and management" of the built environment contained within the National Forests (USDA Forest Service 2001). The Forest Service defines the built environment as "the administrative and recreation buildings, landscape structures, site furnishings, structures on roads and trails, and signs installed or operated by the Forest Service, its cooperators, and permittees (USDA Forest Service 2001). The BEIG divides the United States into eight provinces which combine common elements from the ecological and cultural contexts over large geographical areas. The Mount Spokane Concession area is within the Cascadian Province as defined by the Forest Service. Site development, sustainability, and architectural character should conform to BEIG guidelines described for this Province (see Table EIS 2-4).

3.5.3 Affected Environment

3.5.3.1 Scenic Characteristics of Mount Spokane Ski and Snowboard Park's Concession Area

Developed winter recreation dominates the existing visual landscape on the northeast and east facing slopes of Mount Spokane. The aesthetic landscape near the summit of the mountain has been defined by recreation since the ski area opened to the public, with the development of trails, chairlifts, infrastructure, and skier facilities on State Parks lands.

Alpine skiing on Mount Spokane began in the early 1930s when several ski clubs from the Spokane area began acquiring land and building ski area improvements at various sites around the summit of the mountain. Mount Spokane is also the site of the world's first double chairlift, constructed in 1946, and incremental improvements have been made to the resort since the area began operation as a developed winter recreation site. Mount Spokane Ski and Snowboard Park currently maintains 32 ski runs, 5 chairlifts, 2 lodges (including restaurant, lounge, ski school, equipment rentals), a ski patrol building, and various administrative support structures on 1,425 acres.

The developed ski area consists of areas of clearing, grading and development (including buildings, chairlift terminals and chairlifts) associated with Mount Spokane Ski and Snowboard Park. The area has been developed for winter recreation and vegetated with grasses and forbs. Several trails, facilities and access roads (e.g., N. Summit Road) traverse across the hillside including the existing day lodge, several maintenance buildings and chairlift towers. Additionally, the historic Vista House is located at the summit of Mount Spokane. Most of the area is visible from access roads within the park on the east side of the mountain. However, this area is sparsely populated as public lands extend east to the Idaho/Washington state line. The closest town is Blanchard, Idaho approximately 5 miles to the northeast.

3.5.3.2 Scenic Characteristics the Areas Proposed for Alteration

Individual project elements within the Study Area (the expansion area) are discussed separately from the Concession area at large to provide the reader with specific information regarding the current visual characteristics of the Study Area in relation to the action alternatives.

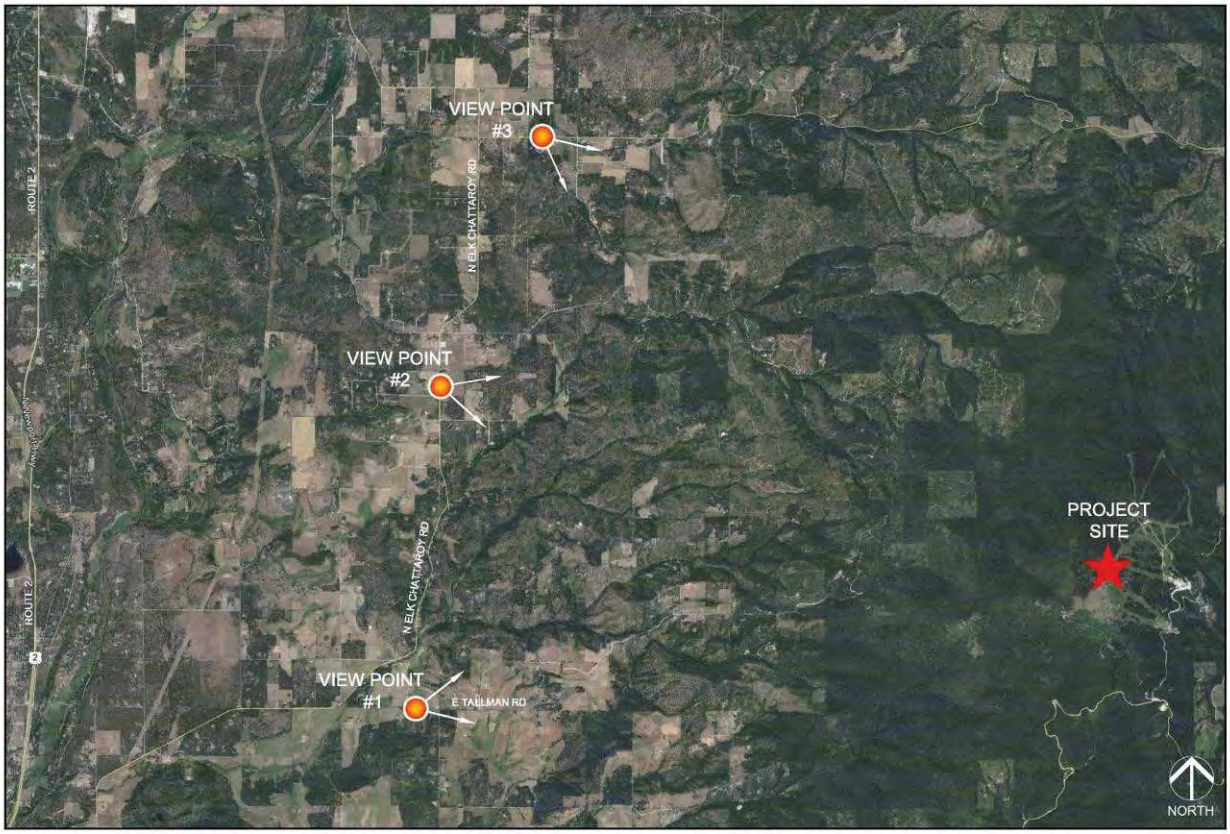
As an undeveloped portion of Mount Spokane Ski and Snowboard Park's Concession area, the expansion area exists in a natural state, which is broadly defined as forested bowls and ridgelines. The existing visual condition within the expansion area also includes the N. Summit Road and adjacent developed ski area facilities (e.g., ski patrol shack, Vista House). However, the expansion area is relatively undeveloped and has a SIL of High (see Table EIS 3.5-1).

3.5.3.3 Critical View Points

In order to analyze potential visual impacts associated with proposed development at Mount Spokane, three critical viewpoints have been displayed (see Illustration 3.5-1 and Figures 8 through 13). These viewpoints are intended to represent the most commonly traveled and used viewpoints of the expansion area, from which development may affect the visual quality and integrity of the area.

It is impractical to undertake a visual analysis of the entire area as a whole. Consequently, three viewpoints were chosen to represent visually sensitive areas within the viewshed. Furthermore, due to topography and aspect, it is evident that the development would not be visible from areas north, east or south of Mount Spokane. Fieldwork and a Google Earth analysis were used to choose the most appropriate viewpoints and to accurately evaluate the effects. Illustration EIS 3.5-1 graphically illustrates the location of the three viewpoints chosen for the analysis.

Illustration EIS 3.5-1: Viewpoint Plan



View Point #1 – East Tallman Road

Viewpoint #1 is located on East Tallman Road approximately 6.5 miles west of the Study Area. Immediate foreground and foreground views are dominated by rural-residential development. Background views are dominated by forested stands and sweeping views of Mount Spokane. Existing background views of the Study Area from Viewpoint #1 meet a SIL of High.

View Point #2 – N. Elk Chattaroy Road

Viewpoint #2 is located on N. Elk Chattaroy Road near the intersection of N. Elk Chattaroy Road and E. Ruff Lane, approximately 6.2 miles west of the Study Area. Immediate foreground views consist of large trees and roadside vegetation. Relatively undisturbed appearing vegetation along N. Elk Chattaroy Road contributes to a natural-appearing setting and would correspond to a SIL of High. Background views are similar to Viewpoint #1 and consist of forested stands and uninterrupted views of Mount Spokane, which also corresponds to a SIL of High.

View Point #3 – East Blanchard Road

Viewpoint #3 is located on East Blanchard Road near the intersection of East Blanchard Road and North Conklin Road, approximately 6.4 miles west of the Study Area. Similar to Viewpoint #1, immediate foreground views are dominated by rural-residential development. Background views are dominated by forested stands and sweeping views of Mount Spokane. Existing background views of the Study Area from Viewpoint #3 meet a SIL of High.

Vista House

The primary viewing point within the park is at the summit of Mount Spokane located at the Vista House. No visual simulations were developed for this location; however, immediate foreground views from the Vista House consist of the parking lot and several ski area facilities (including Chair 1 and an unimproved access road) which dominate the foreground views from the Vista House. Foreground views from the Vista House meet a SIL of Moderate with background views, consisting of sweeping views south to Spokane and east into Idaho meeting a SIL of High. It is important to note that visitors to the Vista House observe developed recreation and ski area facilities as they drive along the Summit Road and park adjacent to the Vista House.

3.5.4 Environmental Consequences

The visual effects of the alternatives were evaluated by comparing the existing landscape character and Scenic Integrity Levels with the conditions that would exist under each alternative. For purposes of this analysis, the scenic integrity describes interactions that deviate from the natural landscape character, including interactions such as vegetation treatments, position and duration of view, and Visual Absorption Capability.

3.5.4.1 Viewpoint #1

Alternative 1

Under Alternative 1, no additional development would occur within the 279-acre expansion area. Visual conditions would remain unchanged. Barring any natural vegetation-altering events, the landscape would continue to appear as described for Viewpoint #1 in section 3.5.3.3.

Alternative 2 and Alternative 3

Under Alternative 2 and 3, vegetation and topography would screen all development as viewed from Viewpoint #1. As such, development on the upper slopes of Mount Spokane would continue to meet an SIL of High as viewed from Viewpoint #1.

3.5.4.2 Viewpoint #2

Alternative 1

Under Alternative 1, no additional development would occur within the 279-acre expansion area. Visual conditions would remain unchanged. Barring any natural vegetation-altering events, the landscape would continue to appear as described for Viewpoint #2 in section 3.5.3.3.

Alternative 2 and Alternative 3

Under Alternative 2 and 3, vegetation and topography would screen all development as viewed from Viewpoint #1. As such, development on the upper slopes of Mount Spokane would continue to meet a SIL of High as viewed from Viewpoint #2.

3.5.4.3 Viewpoint #3

Alternative 1

Under Alternative 1, no additional development would occur within the 279-acre expansion area. Visual conditions would remain unchanged. Barring any natural vegetation-altering events, the landscape would continue to appear as described for Viewpoint #3 in section 3.5.3.3.

Alternative 2 and Alternative 3

As described above, Viewpoint #3 is located in a rural area west of Mount Spokane. Due to the size of Mount Spokane State Park, few relatively well traveled areas exist proximate to the Study Area. Viewpoint #3 was chosen as it is one of the few locations exhibiting a rural-residential population density where the development would be visible.

Under Alternative 2 and 3, immediate foreground, foreground and middleground views would not be affected. As viewed from Viewpoint #3, the new chairlift and four of the seven ski trails would appear in the background view. Where feasible, the edges of ski trails would be scalloped or feathered to reduce any linear appearance and blend into the surrounding landscape. Although it is unlikely that the casual observer would be able to identify the upper terminal of the new chairlift, the color of the upper terminal would be chosen to blend with the adjacent vegetation (see Table EIS 2-4). Under Alternatives 2 and 3,

background views from Viewpoint #3 would meet a SIL of Moderate (*Evident, but not Dominant. Noticeable deviations must remain visually subordinate to landscape character*).

3.5.4.4 Vista House

Alternative 1

Under Alternative 1, no additional development would occur within the 279-acre expansion area. Visual conditions would remain unchanged. Barring any natural vegetation-altering events, the landscape would continue to appear as described in section 3.5.3.3.

Alternative 2 and Alternative 3

Under Alternatives 2 and 3, existing topography and vegetation would screen the majority of the development when viewed from the Vista House. Immediate foreground and foreground views would continue to meet a SIL of Moderate. Therefore, under Alternatives 2 and 3, views from the Vista House would be described as in the existing condition.

3.5.5 Mitigation Measures

Potential direct and indirect effects of the action alternatives would be minimized through implementation of the BMPs and Mitigation Measures described in Table EIS 2-4 and through project specific operational plans.

3.5.6 Cumulative Effects

Cumulative impacts are the effects that may result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Generally, an impact can be considered cumulative if: a) effects of several actions occur in the same locale; b) effects on a particular resource are similar in nature; and c) effects are long-term in nature. Potential areas where cumulative impacts might occur to visual resources as a result of the construction and operation of new ski area facilities are discussed below.

The ski area and base area have incrementally developed as skiing has gained popularity. Additionally, recreational development on public lands at Mount Spokane has involved clearing of hiking trails, grading, and construction of lifts, roads (e.g., Summit Road), and buildings (e.g., Vista House). Changes in vegetative patterns and developed facilities are visible from public lands within Mount Spokane State Park. Each of these developments contributes to the developed landscape that is visible to visitors at Mount Spokane; however, existing development within the expansion area is generally screened from view by topography in areas outside the park. As such, the expansion will have minimal visual impact from roads or vista points outside the park.

The action alternatives contain elements that have the potential to result in visual impacts, primarily through the clearing and grading necessary to formalize ski trails and install lift terminals. These facilities will be visible by visitors accessing the Vista House on the Summit Road during the summer as additional

clearing in a relatively forested landscape, although the upper terminal of the new chairlift and new trails will be screened by existing vegetation and topography from the Vista House.

3.6 RECREATION

3.6.1 Introduction

Mount Spokane State Park offers a wide range of recreation opportunities throughout the year. However, Mount Spokane State Park experiences the highest use during the winter months, with alpine skiing as the primary activity. Cross-country skiing is also operated by the Spokane Nordic Ski Education Foundation. Lift-served backcountry skiing, snowshoeing and snowmobiling also occurs in the PASEA.

Mount Spokane Ski and Snowboard Park is the site of the first double chairlift in North America and contains 32 ski runs, 5 double chairlifts, 2 lodges (including restaurant, lounge, ski school, equipment rentals), a ski patrol building, and various administrative support structures on 1,425 acres. Historically, the majority of visits to Mount Spokane Ski and Snowboard Park have been attributed to day visits. Mount Spokane's location close to the City of Spokane makes it an easy choice for day skiers within this market. Mount Spokane competes with Schweitzer, Silver Mountain, Lookout Pass and 49° North within the local/day skier market. Mount Spokane primarily serves the day use market, which exhibits peak visitation on weekends and holidays, and low visitation during weekdays. A limited amount of overnight lodging is provided in privately owned condominium facilities near the base area requiring an uphill walk or short drive to access ski area facilities. Rentals of some condominium units are offered on year-round basis.

Skier visits ranged from a low of 19,844 visits during the 2004/05 season (due to drought conditions) to 104,724 visits during the 2012/13 season (a record season at Mount Spokane). Over the previous three ski seasons, Mount Spokane has averaged 90,714 annual visits (PSNAA 2011, Mount Spokane 2014).

3.6.2 Affected Environment

Mount Spokane's alpine facilities operate during the winter and shoulder season months. Guest facilities at Mount Spokane include the two lodges (including restaurant, lounge, ski school, equipment rentals), a ski patrol building, and various administrative support structures.

Mount Spokane generates an average of approximately 90,000 to 100,000 skier visits each winter. Skiers and snowboarders primarily utilize ski trails within the developed ski area boundary but will exit the developed ski area boundary from the summit of Mount Spokane in order to access backcountry ski terrain in the PASEA located on the back side above the Chair 4 Road.

Mount Spokane currently operates five aerial chairlifts. The lift network at Mount Spokane provides access to 45 named trails on approximately 150 acres of formal ski trails and another 130 acres of tree and open skiing. The base area is located at an elevation of approximately 4,200 feet with a summit elevation of 5,889 feet providing 1,689 feet of vertical rise.

3.6.2.1 Alpine Skiing Analysis

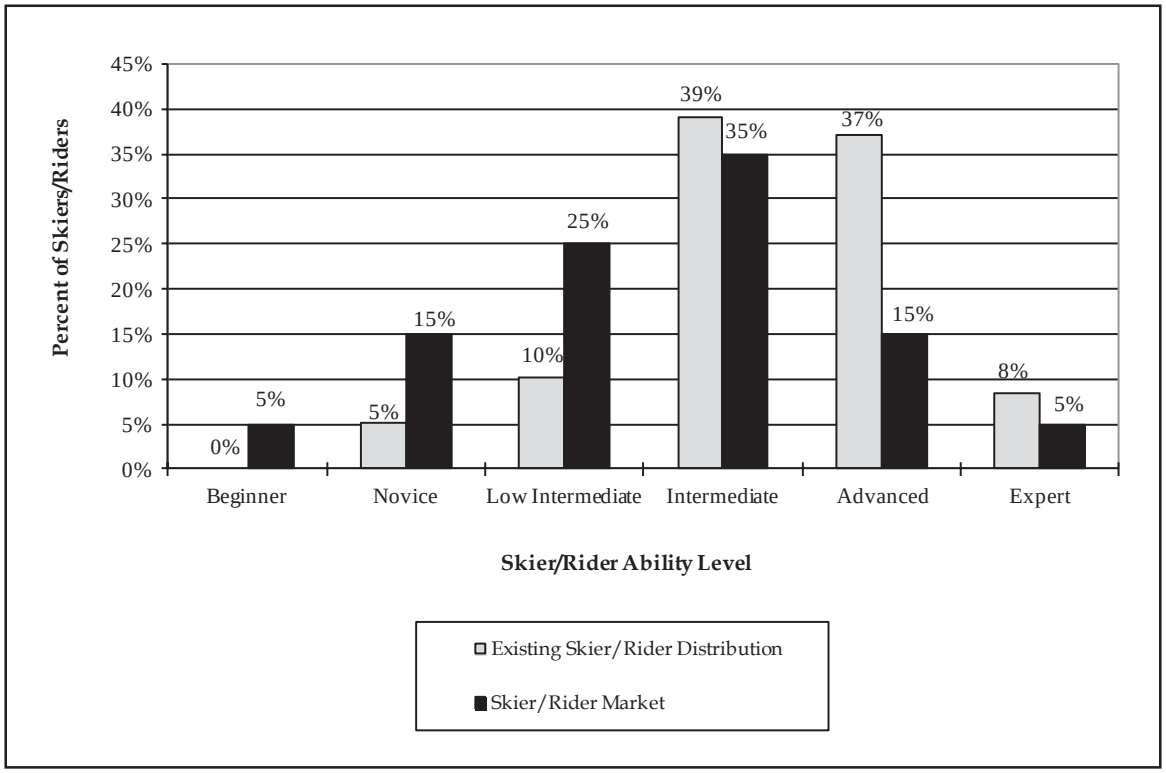
Capacity

The overall balance of the existing ski area is evaluated by calculating the skier capacities of Mount Spokane Ski and Snowboard Park's various facility components, and, in turn, comparing these capacities to the ski area's Comfortable Carrying Capacity (CCC).

CCC is defined as an optimal level of utilization for the ski area (the number of visitors that can be accommodated at any given time) that guarantees a pleasant recreational experience, while at the same time preserving the quality of the environment. The accurate estimation of the CCC of a mountain is a complex issue and is the single most important planning criterion for the resort. Given proper identification of the mountain's true capacity, all other related skier service facilities can be planned. The CCC figure is based on a compilation of the uphill hourly capacity of the lift system and the downhill capacity of the trail system, taking into account the typical amount of daily vertical demand desired by skiers of varying ability levels. At full operation, Mount Spokane Ski and Snowboard Park operates five chairlifts accessing 45 designated ski trails, with an estimated CCC of 2,540 guests per day.

Terrain Distribution, Trail Density and Circulation

Available ski terrain should accommodate the full range of skier ability levels consistent with market demand. The existing terrain at Mount Spokane is predominantly characterized by intermediate and advanced terrain. At full operation (e.g., all chairlifts operating), Mount Spokane's terrain distribution by skier ability level is as displayed in Illustration EIS 3.6-1. Mount Spokane's current terrain distribution is shown in gray while industry standard/market demand terrain distribution is shown in black.



As shown in Illustration EIS 3.6-1, Mount Spokane currently has an oversupply of advanced terrain, a slight excess of intermediate and expert terrain and a deficit of beginner, novice, and low intermediate terrain, as compared to industry standards.

Basic Alpine Trail Design Criteria

Ideally, a resort's trail network accommodates a wide spectrum of guests, with the specific collection of terrain derived, in large part, from a resort's mix of skier ability levels. Trails should have consistent slope gradients, which ensure an interesting and challenging experience for the ability level for which the trail is designed. If gradients are not consistent down the trail, then that means that there will be sections that are too steep or too flat to hold the interest of the given ability level. Trail widths will vary depending upon several factors, including, but not limited to, the topography of the site, the desired trail density, the caliber of skier or snowboarder being served, the grooming and snowmaking requirements. The trail network should be designed to maximize fall-line conditions. Trails should also be designed to minimize cross-traffic situations, which are found at convergence zones and other bottlenecks.

In most instances, trail ability level classification is based upon **maximum** slope gradients observed in the field or in detailed mapping. In limited instances, additional trail attributes (e.g., trail widths, slope grooming practices, slope gradients immediately below the maximum slope gradient pitch, trail undulations, etc.) are taken into consideration during the assignment of trail difficulty. As a result, in

limited instances, trail classifications are indicative of the overall degree of challenge associated with a particular trail, not just **maximum** slope gradient.

The calculation of terrain capacity is based, in large part, on the acceptable number of skiers and snowboarders, which can be accommodated on each acre of maintained terrain, at any one given time. In large part, acceptable trail densities are determined by a resort's marketplace (e.g., guest expectations, ratio of skiers to snowboarders, market niche, marketplace ability levels, etc.), as well as by the resort type. Terrain capacity is largely a function of trail density criteria and terrain area associated with each ability level. Comfortable densities are higher for lower ability lever skiers. In essence, since expert skiers expect more terrain per skier, intermediate and lower level terrain can comfortably hold more skiers per acre. The following analysis discusses the quality of the existing lift and trail network available at Mount Spokane.

- Chair 1 is characterized by advanced and expert level terrain. This area is used by the Mount Spokane Ski Race Association for training as well as expert level skiers. This terrain has excellent, consistent, fall-line terrain—all in the advanced and expert ability levels.
- Chair 2 is characterized primarily by advanced level terrain. This chairlift is under-utilized as the steep terrain makes it unattractive to intermediate and lower level skiers. While not quite as consistent as Chair 1, this terrain provides good advanced and expert level terrain.
- Chair 3 is characterized by intermediate and low intermediate terrain. This chairlift gets heavy use by ski area guests, as the type of terrain is in high demand as shown in Illustration EIS 3.6-1. The upper half of the trails are good, consistent low intermediate and intermediate level trails, but the lower half requires a traverse and ski-back through beginner terrain, with some trails having very flat sections. The trails in the Chair 3 pod do not have consistent fall-lines, as they require off fall-line skiing at both the top and bottom sections.
- Terrain accessed by Chair 4 is bounded by two ski trails that define the outer skiable edges of the terrain. These trails, called Ridge Run and Half Hitch/Lamonga Pass, are both intermediate level or lower intermediate trails and both receive high use. The area between these two trails is characterized by advanced and expert level terrain. The trail named Exterminator, and the trail under the lift line named Geronimo, are located between the outer trails. These two trails are rated expert level.
- Chair 5 services the novice level terrain by the base lodge.

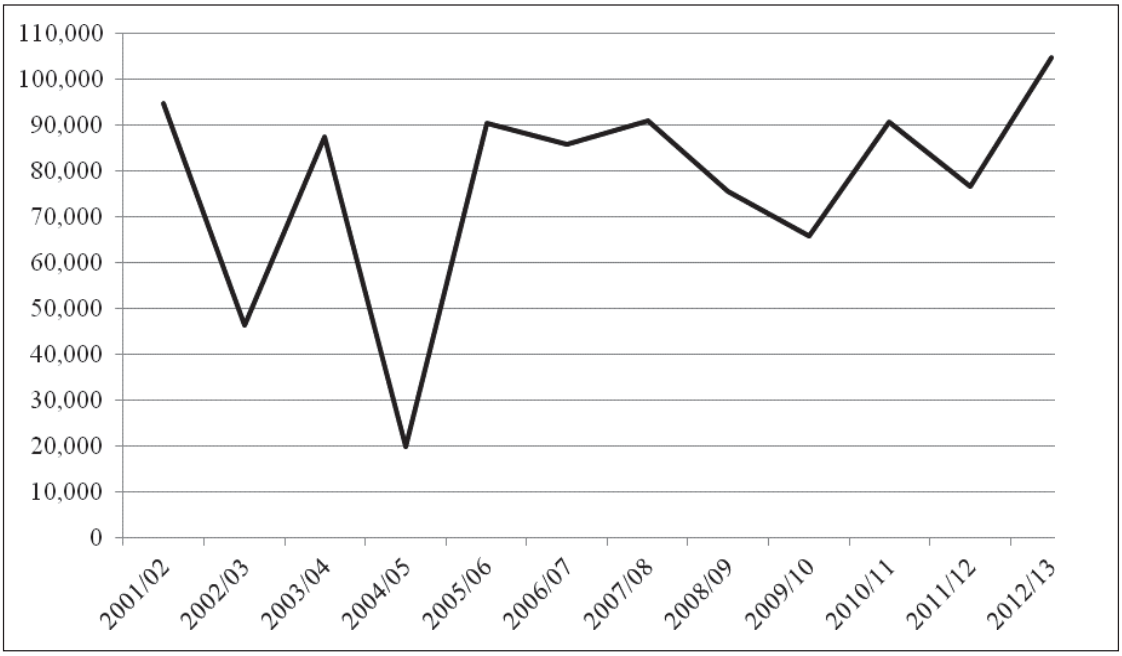
As discussed above, Mount Spokane currently has a large quantity of good, consistent gradient, fall-line, advanced and expert level terrain, available off Chairs 1, 2, and 4. As a result, the resort has no particular need for additional advanced or expert level terrain. Also note that advanced and expert skiers make up a small section of the overall skier market. Mount Spokane has a deficit of consistent gradient and

consistent fall-line terrain that serves low intermediate and intermediate level skiers. This is the largest section of the market (see Illustration EIS 3.6-1), so it will appeal to the greatest percentage of skiers.

3.6.2.2 Visitation

Mount Spokane has exhibited visitation ranging from approximately 19,700 to over 104,724 annual skier visits (PNSAA 2011, Mount Spokane 2014). During the 2001/02 ski season, Mount Spokane exhibited over 94,000 visits. Since that time, annual visitation has been relatively stable, as demonstrated by the twelve-year average of 77,455 annual visits and a three-year average of 90,714 visits (PNSAA 2011, Mount Spokane 2014; Illustration EIS 3.6-2) since the 2010/11 ski season. As the concessionaire (MS 2000) has continued to build loyalty with their patrons, season pass sales have steadily increased from 2,500 to 4,000 a year. Additionally, Mount Spokane has benefited by the increase in publicity related to the Commission's ongoing debate regarding the potential classification of a portion of the PASEA to allow for lift-served alpine skiing. It is recognized that favorable or poor weather conditions have historically caused skier visits to fluctuate from year to year as evidenced by visitation during the 2004/05 season, a particularly warm, low-snow season.

Illustration EIS 3.6-2:
Mount Spokane Skier Visits (2001/02 through 2012/13)



3.6.2.3 Snow Conditions[12]

Mount Spokane has the distinct problem of requiring much greater snow levels than competing mountains due to its southerly dominated exposure. With the same amount of snow, Mount Spokane will generally

[12] For purposes of this analysis, State Parks has identified the reasonably foreseeable future condition of the affected environment for the "no action" alternative based on available climate change statistics, observations and other evidence. The reasonably foreseeable affected environment is consistent with the description of the existing

be the last ski area in its market to open and the first ski area to close. Historically, Mount Spokane has received adequate snowfall to operate without the addition of snowmaking. However, in recent years, snow deposition has become less consistent, with the critical snowline approaching the 4,100- to 4,200-foot elevation. Operation of Mount Spokane Ski and Snowboard Park, especially early and late in the season, is often restricted due to the lack of snow in the lower terminal and base areas.

3.6.2.4 Night Operations

Currently Chairs 2, 3, and 5 are the only areas operating under lighted conditions. Mount Spokane Ski and Snowboard Park operates night skiing from Wednesday through Saturday. Typically, approximately 20 percent of the overall visitation is attributed to night operations.

3.6.2.5 Non-Alpine Skiing Analysis

Backcountry Winter Recreation

Currently, the area known as the PASEA (located above Chair 4 Road and west of the Chair 4 pod) is primarily utilized by backcountry skiers and snowshoers. This area is also included in the 1997 Concession Agreement between MS 2000 and State Parks. Although specific counts for backcountry users are unavailable it is estimated that on any given weekend or powder day approximately 200 visitors a day use the back side for backcountry skiing or other dispersed recreational activities. When Mount Spokane Ski and Snowboard Park does not provide lift access to the summit of Mount Spokane from the existing base area or during the weekdays, the number of backcountry users in the PASEA is generally less than 30. When the ski area is operating, backcountry users are required to skate the uphill grade on the Chair 4 Road to access the bottom terminal of Chair 4 in order to return to the developed ski area.

Because the PASEA is easily accessed from the summit and is known for its higher snow quality and excellent tree and glade skiing, it has become a popular destination for skiers seeking a lift-served backcountry experience. Accordingly, Mount Spokane has provided emergency response to lost and injured skiers within the PASEA. With a lack of lift access into the PASEA, access to injured or lost skiers requires the ski patrol to first locate the injured/lost skier then transport them via a snowmobile to the bottom terminal of Chair 4, where they are then uploaded to the summit via the chairlift.

Within the greater PASEA area, snowmobiles operated by recreational users regularly use the Chair 4 Road, which lies near the western edge of the expansion area, during winter weekends. This may include 100 or more snowmobiles/day during winter weekends and as many as 20 to 30 snowmobiles/day during weekdays (McQuarrie 2014).

Developed Summer Recreation

Under the conditions of their Concession Agreement with State Parks, Mount Spokane Ski and Snowboard Park is not currently permitted to operate a summer recreation program. Within the expansion area, one mountain bike trail has been constructed by State Parks, which provides access from the Summit

condition, where climate change effects are likely to be important but there is significant uncertainty about their effects on the existing condition.

House area to Chair 4 Road and connects to the approximately 90-mile trail system that has been developed within the park.

Dispersed Summer Recreation

Currently, dispersed summer recreational activities take place on State Park lands in the expansion area, including hiking, mountain biking, bird watching, and horseback riding.

3.6.3 Environmental Consequences

3.6.3.1 Alpine Skiing

Alternative 1

Under Alternative 1, the Mount Spokane Ski and Snowboard Park would continue to operate existing chairlifts and trails without any further development. Mount Spokane would continue to operate at a CCC of 2,540 skiers. Under Alternative 1 the existing terrain deficiencies at Mount Spokane would remain unresolved, which would continue to detract from the recreational experience of the Mount Spokane skier. Specifically, with no increase in beginner, novice or low intermediate terrain, Mount Spokane would continue to operate at a terrain deficiency and would not be in a position to respond to the market needs of the public. Beginner skiers making the transition to low-intermediate terrain would continue to be limited to ski terrain served by Chair 3 to *Northwest* or *Half Hitch*. Both of these trails require a long traverse of an existing, highly congested cat track. Over time, Alternative 1 would adversely affect Mount Spokane's ability to provide sufficient terrain to support the local market, resulting in an incremental loss of clientele to other ski resorts, and a reduction in the recreation experience of their guests.

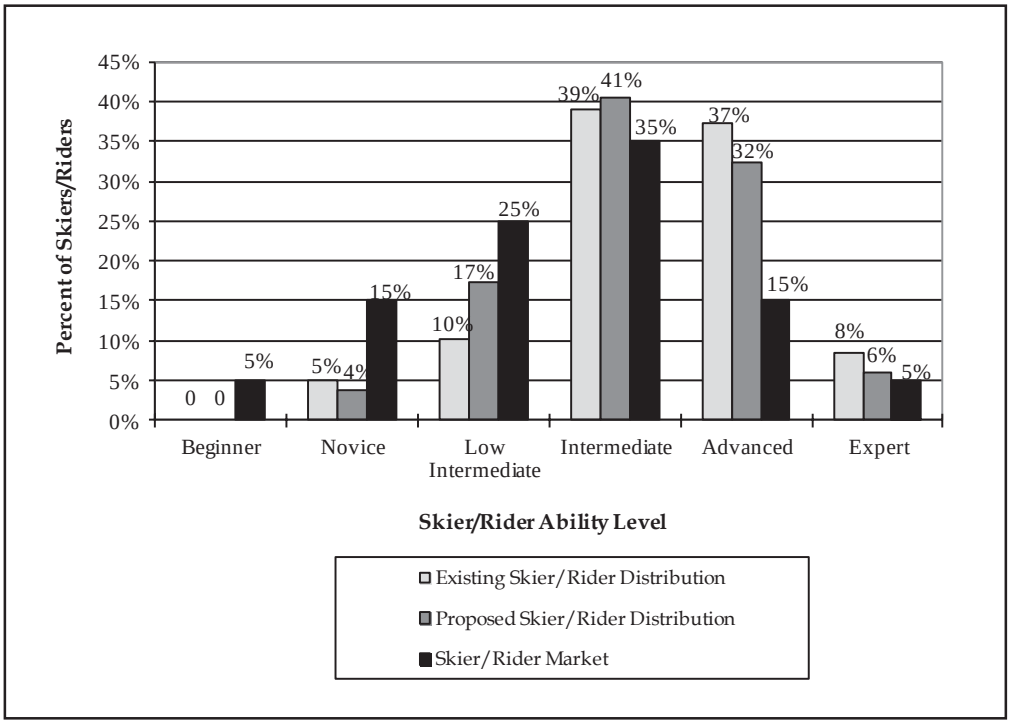
As a result, it is expected that some skiers in the local market would become increasingly frustrated with skiing at Mount Spokane or would look at other options. Therefore, Alternative 1 would limit the ability of Mount Spokane to meet the demonstrated demand for additional terrain at the ski area. Alternative 1 would also leave unresolved the deficiency in access to injured or lost skiers within the PASEA. Ski patrol would continue to be required to first locate the injured/lost skier then transport them via a sled to the bottom terminal of Chair 4, where they would be uploaded to the summit via the chairlift.

Alternative 2

Alternative 2, as shown in Figure EIS-3, represents Mount Spokane's Proposed Action.

Under Alternative 2, Mount Spokane proposes to add approximately 85.4 acres of formal ski terrain on seven new trails, all of which would be accessed from the summit of Mount Spokane. Additional terrain would provide desirable and more consistent intermediate skiing. The CCC of Mount Spokane would increase from 2,540 to 3,100 under Alternative 2. As discussed above, this mountain capacity number is derived from the relationship between up and downhill lift capacity. The increased capacity would allow Mount Spokane to better meet the need to serve its market as one of the largest learn-to-ski areas in the Inland Northwest improving the overall recreational experience of the Mount Spokane skier.

Mount Spokane's terrain and skier distribution under Alternative 2 is shown in Illustration EIS 3.6-3. Overall, the terrain distribution would be improved with the addition of new low intermediate skiing. As a result of the additional terrain at Mount Spokane, demand for intermediate terrain accessed from Chair 3 would be reduced and low intermediate to intermediate skiers would have lift-served access to the most consistent top-to-bottom intermediate level terrain at Mount Spokane. Specifically, the addition of new terrain would reduce skier densities among one of the highest use chairlifts on the mountain and the surplus of intermediate terrain would be reduced in terms of percentage of available terrain.



Under Alternative 2, Mount Spokane would continue to exhibit a shortage of beginner, novice, and low-intermediate terrain.

Under Alternative 2, the available ski terrain would be more capable of accommodating the full range of ability levels, consistent with market demand, as compared to existing conditions. The need to match terrain to market demand would be substantially improved with respect to these terrain types.

Under Alternative 2, Mount Spokane would be less limited by low snow coverage on the lower mountain, with the new ski trails in the expansion area providing access to terrain with better early and late season snow retention and quality, due to the difference in solar aspect (northerly facing vs. southerly aspect for the existing ski trails). The more favorable slope aspect and the development of skiing in the expansion area would also likely result in generating more consistent skier visitation from year to year when compared to existing conditions. Ski patrol response to lost and disoriented skiers would also be

improved with the ability to upload skiers on the new chairlift to the summit of Mount Spokane. Alternative 2 also retains the backcountry skiing experience within the PASEA by limiting the development of alpine ski facilities to 279 acres. Backcountry skiers would still be able to utilize terrain outside of the formal lift and trail network between the proposed Chair 6 pod and the existing Chair 4 pod, as in the existing condition.

Alternative 3

Under Alternative 3, the terrain distribution by ability level, trail densities, CCC and circulation would essentially be the same as described in Alternative 2. The main differences between Alternative 2 and 3 are that less trail grading would result in more undulations on formal ski trails and would result in short pitches that were off fall line. Therefore, Alternative 3 would result in less of a recreational benefit to ski area guests than Alternative 2. Similar to Alternative 2, the development of skiing in the expansion area would likely result in generating more consistent skier visitation when compared to existing conditions.

3.6.3.2 Non-Alpine Skiing

Alternative 1

In the short-term, Alternative 1 represents no impact to backcountry winter recreation opportunities (e.g., backcountry skiing, dispersed snow shoeing, Nordic skiing) at Mount Spokane. Under Alternative 1, backcountry skiing at Mount Spokane would continue to be as described for existing conditions.

Over the long-term, it is expected that growth in demand for lift-served backcountry skiing at Mount Spokane would exceed average visitation growth at Mount Spokane, due to the growing popularity of backcountry experiences as well as equipment advances (i.e., shaped and fat skis), which heighten the skill levels of alpine skiers, as well as improved skill levels on the part of snowboarders in general.[13] No additional opportunities would be provided for lift-served backcountry skiing.

Under Alternative 1, no new development would take place and the entire PASEA would remain naturally intact. Mechanized rescue of visitors recreating in the PASEA would continue to periodically affect the sense of solitude for backcountry users.

Alternatives 2 and 3

Under Alternatives 2 and 3, Mount Spokane would develop one new chairlift and seven associated trails in approximately 279 acres of the 800-acre PASEA. As a result, dispersed backcountry winter recreation opportunities would be eliminated within the 279-acre expansion area. However, this experience would continue to be provided on existing terrain west of the Chair 4 pod and east of the newly developed formal ski terrain in forested areas above the Chair 4 Road.

The introduction of alpine ski facilities into the 279-acre expansion area would substantially reduce the opportunities for solitude in the PASEA during the winter operating season. Alpine skiers would be

[13] Growth in backcountry skiing would generally follow regional population growth, estimated at roughly 1% per year and growth in dispersed recreation in general, estimated at an additional 1% per year, for a total of 2% per year.

commonly found on the newly developed trails. Skiers using chairlifts on developed slopes occur in concentrations that, while consistent within developed ski areas, do not blend well with dispersed recreation and opportunities for solitude. In addition, the top and bottom terminals of the new chairlift would characteristically experience lift queues and skiers milling in these areas.

3.6.3.3 Developed Summer Recreation

Alternative 1

Developed summer recreational activities under Alternative 1 would be as described in the existing condition.

Alternatives 2 and 3

Construction of a new chairlift and clearing/grading for seven new ski trails would result in temporary impacts to developed summer users (primarily mountain bikers) of the expansion area, as well as a long-term addition to the developed character of the 279-acre Study Area. Under the conditions of Mount Spokane's Concession Agreement, use of the new chairlift for uphill transport of mountain bikes would not occur under Alternatives 2 or 3.

3.6.3.4 Dispersed Summer Recreation

Alternative 1

Dispersed summer recreational activities under Alternative 1 would be as described in the existing condition.

Alternatives 2 and 3

Construction of a new chairlift and clearing/grading for seven new ski trails would result in temporary impacts to summer users (e.g., hikers, birdwatchers, horseback riders) of the expansion area, as well as a long-term addition to the developed character of the 279-acre Study Area.

3.6.4 Mitigation Measures

Potential direct and indirect effects of the action alternatives would be minimized through implementation of the BMPs and Mitigation Measures described in Table EIS 2-4 and through project specific operational plans.

3.6.5 Cumulative Effects

Cumulative impacts are the effects that may result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Generally, an impact can be considered cumulative if: a) effects of several actions occur in the same locale; b) effects on a particular resource are similar in nature; and c) effects are long-term in nature. Potential areas where cumulative impacts might occur to recreation resources as a result of the construction and operation of new ski area facilities are discussed below.

Cumulative impacts to recreation are considered for short-term and long-term impacts. The cumulative effect on recreation is an increase in the quality, quantity and access to varied recreation opportunities in the 279-acre expansion area, including an increase in lift-served backcountry skiing opportunities. Alternatively, the loss of hike-to backcountry and side-country ski terrain at Mount Spokane and other ski areas in their market represents a cumulative effect on backcountry skiing. Additionally, there would be a loss of solitude during the summer as hikers, mountain bikers and other dispersed summer visitors experience new facilities in a previously, relatively undeveloped area. Future projects that could cumulatively impact the Study Area include implementation of the Comprehensive Trail Plan, which is part of the 2010 Master Facilities Plan. The Comprehensive Trail Plan contemplates a multi-use trail in the PASEA, depending upon the land classification adopted (see Section II).

3.7 RESOURCES NOT ANALYZED IN DETAIL

3.7.1 Historic, Cultural, and Archaeological Resources

This section briefly discusses Historic, Cultural, and Archaeological characteristics pertaining to existing conditions and projected impacts within the expansion area.

3.7.1.1 Affected Environment

Mount Spokane State Park has a long history with both Native American and European American cultures that were either indigenous to the area or settled in the Spokane area in the late 19th and early 20th centuries. The 2009 Cultural Resource Management Plan (CRMP) for Mount Spokane State Park, prepared for the Mount Spokane State Park Master Facilities Plan – DEIS/FEIS, identified and evaluated structures and sites associated with the development of Mount Spokane from the turn of the 20th century to 1960. The Vista house was determined eligible for inclusion on the National Register of Historic Places (NRHP) in 2002. Within the expansion area, no historic, cultural or archaeological resources are presently identified, other than a portion of the proposed Paradise Camp/Summit Area Cultural Landscape and Cook's Auto Road.

3.7.1.2 Environmental Consequences

Alternative 1

Alternative 1 would have no effect on historic, cultural or archeological resources. There would be no ground-disturbing activities occurring within the expansion area under Alternative 1. Current uses within the ski area and within the expansion area would remain unchanged.

Alternatives 2 and 3

Under both action alternatives, there would be no effect on known historic, cultural or archaeological resources as none are formally recorded, to date, within the expansion area. However, a number of historic structures are identified nearby and portions of the proposal would occur within a proposed boundary for a potential cultural landscape. Approximately 38 acres related to the proposed expansion

area are located within the cultural landscape boundary identified in the 2009 *Cultural Resources Management Plan for Mount Spokane State Park*.

Potential direct or indirect effects on undiscovered historic, cultural or archaeological resources related to the action alternatives are limited to tree removal, ground-disturbing activities, and visual impacts. Archaeological surveys and monitoring would mitigate the relative risk of impacting as yet unidentified resources. No previous cultural resources surveys have been conducted in the majority of the expansion area; however, steep slopes, vegetation, and timber deadfall limit the effectiveness of ground survey for identifying historic, cultural or archaeological resources. Therefore, a systematic pedestrian survey by a professional archaeologist chosen by State Parks would be conducted prior to initiation of project activities within the expansion area and would include any staging areas, log-deck areas, and temporary access trails. Following completion of the cultural resources survey, a professional report of findings will be completed and submitted to the Department of Archaeology and Historic Preservation (DAHP), the Spokane Tribe of Indians, the Coeur d'Alene Tribe and the Kalispell Tribe for review and comment. Construction activities within the expansion area would not occur until completion of consultation over the report of findings between State Parks, DAHP and affected Tribes.

The Paradise Camp/Summit Area Cultural Landscape contains sixteen individual buildings, structures, and objects. These features were documented on Historic Property Inventory Forms and submitted to DAHP for concurrence on eligibility for the National Register of Historic Places in December of 2012. Of these, ten were determined by DAHP to be eligible for listing on the NRHP including the Vista House, the Latrine, Woodshed, and Reservoir at Cook's Camp, CCC Camp Francis Cook, Cook's Auto Road, the Headquarters Building at CCC Camp Cook, the Memorial to Spokane County War Dead, the Boy Scout Memorial, and the View Tubes. Of these eligible resources, only Cook's Auto Road lies within the proposed expansion alternatives area. Others are nearby, and the expansion area alternatives overlap slightly with the cultural landscape boundary as defined in the 2009 CRMP. The six features determined to be not eligible for the NRHP include the remains of a CCC telephone line, the original Mt. Spokane Lodge remains, the unfinished Beauty Mountain Latrine, the remains of the Caretaker's Residence in the Cook's Cabin area, communications facilities near the summit, and Chair #1. If it is determined that the action alternatives represent an adverse effect on NRHP eligible resources under applicable cultural resource regulations, then appropriate mitigation measures will be determined by State Parks, DAHP, affected tribes, and other consulting parties in advance of any project logging or construction in the cultural landscape area.

Mitigation Measures

In the event prehistoric sites, culturally modified trees, artifacts, or human remains are identified during project construction, work in the immediate discovery area will cease until a State Parks Archaeologist can evaluate the resource. Affected tribes will also be notified. That evaluation will include additional consultation with DAHP and affected Tribes.

3.7.2 Air Quality

This section briefly discusses air quality characteristics pertaining to existing conditions and potential impacts within the expansion area and adjacent ski area.

3.7.2.1 Affected Environment

The air quality in the park is considered good to excellent and is affected primarily by activities in the lower elevation rather than in-park activities (Washington State Parks 2010a). Air quality and visibility within Mount Spokane State Park and the surrounding area follows patterns strongly influenced by weather and topography. Local air quality in the Study Area is primarily affected by emissions from the use of fireplaces, summer dust storms, and motorized vehicles and occasional nearby wildfires. Air quality in Spokane County is considered good during the winter with air quality monitoring conducted around-the-clock via a network of ten air monitoring sites (Spokane Regional Clean Air Agency 2014).

3.7.2.2 Environmental Consequences

Alternative 1

Under Alternative 1, impacts to air quality from the current operation at Mount Spokane would not change.

Alternatives 2 and 3

Overall, potential impacts to air quality from project implementation are not anticipated to be significant. Minor short and long-term air quality impacts can be expected as a result of the project during the construction phase and as a result of continued operation. Each is discussed below.

Short-Term Air Quality Impacts

Construction activities can be expected to result in limited, short-term air quality impacts, resulting from the movement of heavy equipment. Construction activities would be temporary and would occur in a localized area. Airborne contaminants generated from construction would include particulate matter, vehicle emissions, and increased windborne dust (i.e., fugitive dust).

Vehicular emissions from construction equipment and construction worker vehicles are anticipated to have very minimal short-term impacts.

Long-Term Air Quality Impacts

Air quality in Spokane County is considered good during the winter with air quality monitoring conducted around-the-clock via a network of ten air monitoring sites (Spokane Regional Clean Air Agency 2014). The only long-term air quality impact that is anticipated to result from this project is related to the potential increase in visitation and corresponding increase in vehicle traffic. The primary pollutants associated with vehicular exhaust emissions are nitrous oxides and carbon monoxide (NO_x and CO). Despite this increase in vehicle traffic over time, vehicular exhaust emissions are consistently being reduced through technological innovations. As a result, individual vehicle contributions to air quality can be expected to decrease over the course of time. Therefore, this relatively low level of increased vehicular

traffic would not result in measureable direct or indirect impact to local and regional air quality under Alternatives 2 and 3.

Mitigation Measures

Short-term, construction-related fugitive dust and emissions will be minimized through the employment of best management practices (BMPs). Standard construction BMPs that may be implemented to control, reduce or eliminate adverse impacts to air quality include, but are not limited to, routine watering of the construction/access roads and excavation sites (see Table EIS 2-4). Additionally, all construction equipment would be maintained in good working order, as well as minimizing the amount of idling equipment.

3.7.3 Noise

This section briefly discusses noise characteristics pertaining to existing conditions and projected impacts within the expansion area and adjacent ski area.

3.7.3.1 Affected Environment

Mount Spokane Ski and Snowboard Park and the expansion area are located in a relatively remote forested area and the surrounding vicinity is sparsely populated. The largest summer noise generator within the area is from State Park guests in vehicles traveling on North Summit Road to access the Vista House. The noise level varies with traffic density and can be heard on the upper slopes of the existing ski area.

The primary noise generators during the winter are existing chairlifts, grooming equipment, and snowmobile activity associated with ski area operations. Typical background noise levels in coniferous recreational areas range from 35 to 45 dBA in the summer daytime and 30 to 35 dBA in the winter daytime (USDA Forest Service 2007). Sound levels within the existing ski area are not uncharacteristic for this type of land use, as vegetation and snow cover absorb nearly all of the human caused noise. Even during winter operations, the noise level in the existing ski area remains near background. Electric motors used on the chairlifts increase noise levels above background in the vicinity of these facilities. In addition, the passing of snow groomers and snowmobiles used for administration and maintenance occasionally breaks the natural silence; however, noise generated by chairlifts, grooming equipment or ski area-associated equipment has not typically been found to be a nuisance to people utilizing ski area facilities.

3.7.3.2 Environmental Consequences

Alternative 1

Under Alternative 1, this resource would be as described above.

Alternatives 2 and 3

Under Alternatives 2 and 3, chairlift noise would be introduced into the expansion area as facilities become operational. Given the close proximity of the top terminal of the new chairlift to existing

chairlifts at the summit of Mount Spokane, the noise generated by the chairlift terminal, ski area users and grooming equipment would be similar to the existing condition within the developed ski area.

During construction of the chairlift and trails in the expansion area, noise associated with excavation and construction of the new chairlift and trails would be the most noticeable impacts associated with the project proposal, and would occur over the period of one summer. During construction, there would be a temporary increase in noise levels in the expansion area, as well as in adjacent areas of the summit area, due to the use of various types of construction equipment and the hauling of materials within the expansion area. Construction noise impacts would be localized, short-term, and generally limited to daytime hours during the summer of construction. The exact noise levels would depend on the type of equipment being used and the duration of use. The types of ground equipment used for this project would typically generate noise levels between 80 and 90 dBA at a distance of 50 feet while equipment is operating.

Mitigation Measures

Notices would be posted on summit trailheads and at the Vista House informing visitors about the possible construction noise that might be audible to them (see Mitigation Measures Incorporated into the Project Proposal). Construction will be scheduled to occur when there is the least impact to species during breeding and nesting periods, where practical.

3.7.4 Land Use

This section briefly discusses Land Use characteristics pertaining to existing and proposed conditions within the expansion area and adjacent ski area.

3.7.4.1 Affected Environment

WAC 352-16-020 establishes a Land Classification System (LCS) for management of State Park Lands (see Appendix F). The LCS is a system of management zoning for park lands and waters that sets forth, in a general fashion, the basic philosophy, physical features, location, activities, and developments in a park. When assigned to a specific area within a park, each classification sets an appropriate intensity for recreational activities and facilities development. Classifications are aligned along a spectrum ranging from low to high-intensity recreational uses and developments. By classifying park lands, the agency is able to consciously strike a balance between protecting park resources and providing an appropriate variety of recreational opportunities to park visitors. As noted in Section I, Chapter 2 – Background, as part of its October 1999 classification action for Mount Spokane State Park, the Commission left the PASEA as an unclassified area within the 14,000-acre Park in order to further study what the eventual classification should be, particularly within the context of a potential expansion of Mount Spokane Ski and Snowboard Park.

The LCS includes six classifications: Natural Area Preserve, Natural Areas, Natural Forest Area, Resource Recreation Area, Recreation Area, and Heritage Area. Of these classifications only Recreation

and Resource Recreation would allow alpine skiing as a conditional use. The Commission would have to allocate one of these two classifications to the 279-acre expansion area for the project to move forward and allow for the development of the chairlift and trail corridors. Appendix F summarizes the specific direction for each classification, including allowed and prohibited developments.

County Zoning and Approvals

The expansion area lies within Spokane County and is subject to local land use regulations. Developments within the park must also receive approval from other State and Federal jurisdictions for specific projects (see Table EIS 2-4).

Spokane County has zoned Mount Spokane State Park as (Rural Conservation (RCV); it defined RCV as:

> *"Rural Conservation: The Rural Conservation category applies to environmentally sensitive areas, including critical areas and wildlife corridors. Criteria to designate boundaries for this category were developed from Spokane County's Critical Areas program and a study by the University of Washington titled, Wildlife Corridors and Landscape Linkages, An Approach to Biodiversity Planning for Spokane County, Washington. The category will encourage low-impact uses and utilize clustering and/or other open space techniques to protect sensitive areas and preserve open space. Density: The density of the Rural Conservation category is 1 dwelling unit per 20 acres, with a bonus density of 1 dwelling unit per 10 acres."*

Within the RCV zone, winter recreation areas, including downhill, Nordic/cross-country skiing, snowmobiling and ice-skating are outright permitted uses under the Spokane County Zoning Code.

3.7.4.2 Environmental Consequences

Alternative 1

Under the No Action Alternative there would be no overall change in land use within the expansion area. Dispersed winter recreation (i.e., backcountry skiing) would continue to occur within the expansion area. No Federal, State or local approvals would be required under Alternative 1.

Alternatives 2 and 3

Under Alternatives 2 and 3, lift-served alpine skiing would be introduced into the 279-acre expansion area. Such a development would be dependent on a Commission classification of the lands in the expansion area as Recreation or Resource Recreation, based upon the outcome/decision from the non-project EIS process. Any relevant Federal, State, and local permits would be obtained prior to commencement of project activities (see Table EIS 2-4).

Mitigation Measures

No specific mitigation measures are proposed.

3.7.5 Transportation and Parking

This section briefly discusses Transportation and Parking characteristics pertaining to existing and proposed conditions within the expansion area and adjacent ski area.

3.7.5.1 Affected Environment

Accessibility to Mount Spokane Ski and Snowboard Park is provided by U.S. Highway 206 which is in good condition and is maintained daily by the State. The State Park access road to the base area is an asphalt surface in mostly good condition and is maintained daily by State Park Staff.

Mount Spokane Ski and Snowboard Park experiences visitation that is typical for regional, day use facilities. The majority of the ski area's visitation and peak parking demand occurs on weekends and holidays. Conversely, weekdays generally receive modest use, and Mount Spokane Ski and Snowboard Park has relatively low demand for parking.

Parking lots located near Lodge 1 and 2 provide capacity for approximately 1,000 vehicles. Based on average vehicle occupancy (AVO) of 2.7 people per car, the current parking accommodates approximately 2,700 people. On peak days, guests park along the access road and/or over-flow into the Nordic lot. Employee parking is located outside the main parking area at the entrance to the concession area, and employees are required to utilize the shuttle to get to their designated work areas. Parking staff is assigned to the parking areas to help facilitate efficient parking at the main parking area at Lodge 2. In 2008 Mount Spokane began subsidizing the regular and scheduled busing programs from Spokane to the ski area on weekends and holidays, as well as providing parking for employees at the entrance to the concession area (Lot 3), which has eliminated any previously experienced parking shortage. During peak operations, three shuttles run full time transferring staff and guests from outside the main parking area to Lodge 2. The 2010/11 ski season resulted in the second highest visitation on record since the concessionaire began operating the ski area. Visitation peaked on Martin Luther King holiday, where Mount Spokane provided parking for approximately 1,032 vehicles, with additional capacity remaining.

3.7.5.2 Environmental Consequences

Alternative 1

Under Alternative 1, no changes to the parking situation would occur. No new facilities would be constructed; therefore, demand for parking at Mount Spokane would not change. Mount Spokane would continue to experience high demand for parking during weekends and holidays, with relatively low demand on weekdays.

Alternatives 2 and 3

Alternatives 2 and 3 would not include the construction of any additional parking at Mount Spokane. Parking capacity and ski area access would remain as described under the existing condition. Through the implementation of the mitigation measures (detailed below) and the existing ability to park approximately 2,700 guests at the existing parking lots at Mount Spokane, parking would continue to be limited, but is not anticipated to exceed supply during peak days.

As the intent of both action alternatives is to better match terrain to the skier market demand it is anticipated that visitation would increase if either Alternative 2 or 3 was implemented. Increased visitation would also increase demand for parking at existing lots. Should demand for parking approach capacity due to the implementation of Alternative 2 or 3, Mount Spokane Ski and Snowboard Park would address the increased parking demand through a combination of improved snow management in the existing parking lots, increasing the subsidy/add additional service to the shuttle system from Spokane, and/or develop a dedicated shuttle service from the Snow Blaze Condominiums. Therefore, it is not anticipated that parking demand would exceed supply.

Mitigation Measures

Mount Spokane Ski and Snowboard Park would improve AVO through the use of incentives for carpooling and more efficient utilization of the regular and scheduled busing programs from Spokane to the ski area on weekends and holidays.

3.7.6 Public Services

This section briefly discusses Public Services characteristics pertaining to existing and proposed conditions within the PASEA and adjacent ski area.

3.7.6.1 Affected Environment

Volunteer Ski Patrol

Within the Concession Area, search and rescue and first responder duties are performed by the all-volunteer Mount Spokane Ski Patrol. The ski patrol responds to emergencies and provides rapid transportation from the mountain to Mt Spokane's First Aid facility, while coordinating with local air or ground ambulance support. Large searches may involve the Spokane County Sheriff's Department, the Winter Knights, the Mount Spokane Ski Patrol, and, in some cases, the Washington Air National Guard. Every year, the ski patrol has provided emergency response to lost and injured skiers and snowshoers within the greater PASEA and areas easily accessed off the Chair 4 Road on almost a weekly basis, which taxes the resources of the organization. Specifically, access to injured or lost skiers and snowshoers requires the ski patrol to first locate the injured/lost skier/snowshoer then transport them via a sled to the Chair 4 Road, and then pull the sled via snowmobile to the bottom terminal of Chair 4, where they are then uploaded to the summit via the chairlift. During the 2012/13 ski season 20 people were reported missing on the backside of the ski area, which required a search by ski patrol. One example of the type of rescue seen in or around the PASEA occurred during the 2013/14 ski season. Two snowshoers hiked to the summit of Mount Spokane then downslope through the PASEA. Once on the Chair 4 Road they became disoriented and lost from early afternoon until the next morning when they were found by Spokane County Search and Rescue. Minor rescue operations occur multiple times a week or in some peak visitation days, several times a day. The ski area estimates 30 to 40 minor incidents are being reported each year.

Police Services

Park Rangers are the point of first contact for police services at the Park, with backup as needed from the Spokane County Sheriff's Office.

Fire Protection

Structural fire protection is provided through contract with the Mead Fire District. The Washington Department of Natural Resources is responsible for wildland fire control.

Emergency Medical Services

The Mead Fire District provides emergency services at the Park.

Community Services

Community services, such as medical services, housing, schools, and other public services, are provided by the Mead School District, City of Mead and Spokane County.

3.7.6.2 Environmental Consequences

Alternative 1

Under the No Action Alternative there would be no increase or decrease in demand for public services. Because the PASEA in general is easily accessed from the summit and is known for its higher snow quality and tree and glade skiing, the undeveloped backside would continue to tax the resources of its all-volunteer ski patrol as skiers and snowshoers become lost or injured in the relatively remote portion of the Concession Area.

Alternatives 2 and 3

Under Alternatives 2 and 3, no significant increase in demand for public services is expected. Overall, the project would likely result in a net benefit to emergency services within the expansion area by providing increased access to a relatively remote area that currently sees several ski patrol rescues a year as ski area visitors either get lost or injured while backcountry skiing or snowshoeing. Providing lift-served, access to the expansion area in combination with directional signage on new trails would likely reduce the number of visitors who get disoriented and lost within the undeveloped area between the 279-acre expansion area and Chair 4 pod as well as improve ski patrol response time.

Mitigation Measures

No specific mitigation measures are proposed.

3.7.7 Environmental Health

This section briefly discusses Environmental Health characteristics pertaining to existing and proposed conditions within the expansion area and adjacent ski area.

3.7.7.1 Affected Environment

Mount Spokane Ski and Snowboard Park has a broad range of facilities normally associated with developed winter recreation activities, including two ski lodges, five double chairlifts, a vehicle

maintenance facility, and a water storage facility providing potable water to the existing facilities. Additionally, Mount Spokane provides parking for approximately 1,000 vehicles. Vehicle exhaust, noise, and traffic normally associated with developed winter recreational activities are present. However, because the ski area is relatively isolated from adjacent private lands, it is unlikely that exhaust, noise, and traffic generated by ski area users would affect adjacent property owners or the general public.

3.7.7.2 Environmental Consequences

Alternative 1

Under Alternative 1, no new projects would be implemented at Mount Spokane. No increase in vehicle use, traffic or vehicle exhaust would occur. No new construction would occur within the expansion area; therefore, there would be no possibility of incidental leaking of toxic chemicals (e.g., diesel fuel, oil) from construction equipment that could pose an environmental risk.

Alternatives 2 and 3

Under Alternatives 2 and 3, a Spill Prevention and Response Plan (SPRP) will be included in the SWPPP as part of the construction documents in order to reduce the risk of toxic chemicals (e.g., diesel fuel, oil) entering the environment. Fire extinguishers would also be stationed on all construction equipment to reduce the risk of inadvertent fire and explosion.

Mitigation Measures

As described above, Mount Spokane would develop a SPRP as part of the construction documents in order to reduce the risk of toxic chemicals entering the environment. Fire extinguishers would also be stationed in work areas to reduce the risk of wildfire. New developments will comply with any applicable local, State and Federal regulations.

3.7.8 Utilities

This section briefly discusses utility characteristics pertaining to existing and proposed conditions within the expansion area and adjacent ski area.

3.7.8.1 Affected Environment

Mount Spokane Ski and Snowboard Park receives electrical power through service from Avista. Power arrives and is distributed via underground cable. Avista also provides power to the TV/communications towers at the summit of Mount Spokane.

3.7.8.2 Environmental Consequences

Alternative 1

Alternative 1 would not generate any changes to the utility infrastructure serving Mount Spokane Ski and Snowboard Park.

Alternatives 2 and 3

Under Alternatives 2 and 3 a new chairlift would be constructed within the 279-acre expansion area. The new chairlift would be electrically powered with a diesel-fired back-up system for emergency power in the event of an outage. This backup system would require storage of diesel fuel in an above-ground tank. When the original ski area was developed, a power line was run to the summit of Mount Spokane to provide power for the chairlifts. The existing power line has sufficient capacity to provide energy for another top drive chairlift. As a result, under Alternatives 2 and 3 a utility spur would be constructed and installed at the terminal site.

Mitigation Measures

No specific mitigation measures are proposed.

4. LIST OF PREPARERS

4.1 PROJECT MANAGEMENT TEAM

Contributor	Education and Experience	Contribution
SE GROUP		
Ted Beeler	Bachelor of Science, University of Utah, 1974; Master of Urban Planning, University of Michigan, 1977	Principal, Recreation
Chris Ward Environmental Planner/Forester	B.S. Forest Resource Management, University of Missouri – Columbia. 1997	Project Manager, Vegetation, Visual Resources, Recreation, Watershed Resources, Wildlife, Soils and Geology, Resources not Analyzed in Detail
Kelly Owens Biologist/Soil Scientist	B.A. Environmental Science, Colorado College. 2003; Masters of Biology – Soil Science; University of Denver, 2009	Technical Writing – Soils and Geology
Mitch Lefevre	B.S. Landscape Architecture, University of Massachusetts – Amherst, 2007	Visual Simulations
Peter Williams	B.A. Human Ecology, College of the Atlantic, Bar Harbor, Maine, 1993	Recreation
Ben Warren	B.A. Landscape Architecture, Utah State University, 2010	Mapping, Recreation
ICF INTERNATIONAL		
Bill Baber	B.S. Biology, Washington State University, 1990	Watershed Resources, Vegetation, Wildlife

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